American Perfumer AND AROMATICS

COSMETICS
TOILETRIES
SOAPS

•

FLAVORS
AEROSOLS

•

ESSENTIAL OILS

MARCH 1958

THE MAGAZINE OF TASTE AND SCENT

Rosaria

by UNGERER

An excellent reproduction of the natural Otto Rose Bulgarian offered as an ideal extender or substitute in the preparation of Fine Perfumes and Perfume Specialties

A product of the Ungerer Laboratories achieving the fresh natural quality of the scarce Otto Rose at a fraction of the cost of the genuine distillate

UNGERER & CO. NEW YORK

Ungerer & Co.

UNGERER, VIDAL-CHARVET
Paris, France

161 Avenue of the Americas, New York 13, N. Y.
plant and laboratories
Totowa, N. J.

CHICAGO • BOSTON • PHILADELPHIA • ST. LOUIS • LOS ANGELES • ATLANTA

Once in a blue moon a really fragrant synthetic arrives—Lilial—Givaudan's contribution to floral naturalness!* *Lilial*—a pure aldehyde with an intense and diffusive note that recalls linden blossoms, with the emphasis on fragrance, represents a new high for synthetics in perfume elegance.

Lilial has remarkable tenacity and lends unmatched floralcy, intimate warmth and unique naturalness to almost any composition. On a perfume blotter it lingers for more than a month.

Unusually stable in soap, *Lilial* is long-lasting and diffusive. It is available in quantity—at a moderate price. No one synthetic has ever presented more desirable qualities to the perfumer.

Samples and technical data are available upon request.

*Trademark

GIVAUDAN

GIVAUDAN-DELAWANNA, INC.

330 West 42nd Street
New York 36, New York

contents:

COVER: The Hospice of the Mt. of the Beatitudes by the Sea of Galilee in Israel. According to Christian Tradition, this is the Mt. from which Jesus pronounced the "Sermon on the Mount." Courtesy of the Israel Gov't Tourist Office.

VOL. 71, NO. 3

MARCH, 1958

American Perfumer AND AROMATICS

NBP ABC ABP

PUBLISHED MONTHLY by Moore Publishing Company, Inc. Publication office: Emmett St., Bristol, Conn., U.S.A. Editorial and Executive Offices: 48 W. 38th St., New York 18, N.Y. J. H. Moore, Chairman of the Board; J. H. Moore, Jr., President; Lucian Neff, Vice President; Harold W. Springborn, Vice President; G. R. Brennan, Secretary, Subscription Rates: U.S.A., Possessions and Canada, $5 one year; 50¢ per copy. Foreign, $15 one year. Entered as second class matter, January 12, 1950, at the Post Office at Bristol, Conn., under act of March 3, 1879. Moore Publishing Co., Inc., is publisher also of Advertising Agency Magazine, American Printer & Lithographer, Gas Age, Gas Appliance Merchandising, Industrial Gas, LP-Gas and Brown's Directory of American Gas Companies. Address all correspondence to editorial and executive offices.

(Cable Address: Robinpub, N. Y. Volume 71, No. 3.

Emulsifiers

For ease of use — For dependable results —
For solving difficult problems

Tegacid...

Glyceryl Monostearate — Acid Emulsifying. For anti-perspirant — deodorant creams, lotions and ointments — all greaseless, medicated formulations.

Tegin...

Glyceryl Monostearate — Self Emulsifying. For neutral greaseless creams, lotions, ointments, suntan creams.

Tegin 515...

Glyceryl Monostearate — Non Self-Emulsifying. Used in conjunction with auxiliary emulsifiers.

Tegin P...

Propylene Glycol Monostearate — Self Emulsifying. For greaseless creams—brushless shave, foundation, suntan: lotions — foundation, suntan, ointments.

Lanolin Absorption Bases

PROTEGIN X.....ISO-LAN

For Creams, Lotions, and Ointments

• TEGOSEPT PRESERVATIVES **• ANTIOXIDANTS**
ESTERS OF PARAHYDROXYBENZOIC ACID PROPYL GALLATE ETHYL GALLATE

Goldschmidt
CHEMICAL CORPORATION

153 Waverly Place, New York 14, N. Y.

SALES REPRESENTATIVES

CHICAGO • LOS ANGELES • ST. LOUIS • MONTREAL • TORONTC

· FRAGRANCE FOUNDATION

TIBASIA... all the mystery and exotic beauty of the Orient is captured in this exciting new perfume oil concentrate. Its heavy, sweet fragrance has wonderful lasting properties and great adaptability in perfume, toilet water, sachet and bath oils. It's rare indeed when a fine perfume oil such as TIBASIA is offered at $9.50 per pound. Convince yourself that this is a most unusual concentrate—let us send you free samples of TIBASIA to test in your own products.

Our Specialty is the Creation of Perfume Odors Exclusively!

AROMATIC PRODUCTS, Incorporated

235 4TH AVE., N. Y. 3 • CHICAGO • DALLAS • MEMPHIS • PITTSBURGH • LOS ANGELES • BOSTON

ERFUME OIL CONCENTRATE FOR PERFUME, TOILET WATER, SACHET, BATH OIL

by Courtesy of "Sculpture Center"

WARRIOR

by Lin Emery

Just as Lin Emery's skillful technique of combining contrasting themes (attack, defense, thrust and parry) has formed a masterpiece in abstraction — a dynamic composition which leaves a vivid and lasting impression . . .

. . . PFW's skillful techniques of combining contrasting aromatics have always formed distinctive fragrances — scents which leave a vivid and lasting impression.

If you have not yet taken the opportunity to inspect and sample PFW's carefully balanced perfume bases or special fragrance compounds, we suggest you contact us, soon.

PFW

POLAK'S FRUTAL WORKS INC., MIDDLETOWN, N. Y.

AMERSFOORT, HOLLAND • PARIS, FRANCE • BREMEN, GERMANY • BRUSSELS, BELGIUM • SOFLOR LTD. - PERIVALE, ENGLAND

LAST MINUTE NEWS . . .

Orange Oil Price Rise First Since 1956

Sunkist Growers through their distributors: Fritzsche Brothers Inc., Dodge & Olcott Inc. and Ungerer & Co. have announced an advance in the price of cold pressed orange oil to $2.35 per pound from $1.75. This is the first advance in the price of this oil since October 1, 1956. Total sales of orange oil run over 500,000 lbs. annually.

First Cosmetics Made With Placenta Extract

Utilizing placenta extract, a combination of the proteins, hormones, vitamins, enzymes and esters that help to promote skin cell growth before birth, as a basic ingredient the Lambert-Hudnut division of the Warner Lambert Pharmaceutical Co. will launch on the market next month two new cosmetics. So far as is known this is the first time cosmetics formulated with placentine—a highly concentrated placenta extract—has been employed in formulating cosmetics in this country. Both the face lotion called Elixir Natale in a 1¾ oz. container and the night cream called Creme Natale in a 1½ oz. container will retail for $7.50. Both will be in the DuBarry line. The properties and the uses of placenta extracts in cosmetics were covered in an article in the February 1954 issue of the American Perfumer and Aromatics by Horst Gohlke, M. D. a specialist in the diseases of the skin and genitourinary passages.

Soap-Detergent Consumption 28½ lbs per Person

The American public is consuming 28½ lbs. of soap and synthetic detergents per person a year according to computations of the Assn. of American Soap & Glycerine Producers, which has issued its soap sales census for 1957. Total soap and synthetic detergent sales for 1957 were 4,104,675,000 lbs. This was 3.3% ahead of 1956 which was a record year. Dollars sales amounted to $998,115,000 up 9.3% over 1956. Sales of synthetic detergents, solids and liquids now 71% of the total market, reached a new high with a tonnage of 2,915,766,000 lbs, 8.4% above 1956. Dollar sales amounted to $683,590,000 up 14.4% over 1956. Liquid detergents which have had a substantial growth in popular demand continue to advance. Sales in 1957 amounted to 363,480,000 compared with 259,656,000 lbs. sold in 1956 an increase of 40%. Soap sales, solids and liquids, for 1957 were reported at 1,188,909.000 lbs. down 7.5% from 1956. Dollarwise sales in 1957 totaled $314,525,000 down 0.5% compared with $316,091,000 in 1956.

Angelique Offers Perfume for Political Campaigns

To sweeten up campaign rallies and backroom huddles Charles Granville, president of Angelique & Co., Wilton, Conn. has offered to Gov. Faubus of Arkansas a perfume bubble machine. In a letter to Gov. Faubus Mr. Granville, a master merchandiser, wrote: "Even in the most democratically organized political battles many outspoken and upsetting statements are issued by both sides. Animosity, ruffled tempers and jangled nerves which result from this turmoil cannot help but create an unhappy emotional climate during and after the campaign. As an aid in counteracting this unfortunate situation we are pleased to offer you special equipment designed by our firm which is capable of dispensing scented bubbles, perfumed with our White Satin fragrance, over a wide area at political meetings such as election rallies or debates. A pleasant fragrance in the air will quickly dispel the dangerous and undesirable atmosphere. We have found that the presence of such a fragrance has a direct, calming effect on man's anger mechanism and tends to create reactions of admiration and friendship rather than of dislike and enmity. Our machines put into action at the press of a button by you will act as an effective antidote for anger and will give rise to calm good feeling, even when the political battle is at fever pitch." It is reported that a similar offer has been made to other governors.

Emulsions Subject of Six Weeks Seminar

Emulsion theories and technology is the subject being treated in a special six-week seminar series in cosmetic chemistry which began at St. Johns University College of Pharmacy, Brooklyn, N. Y. March 12. The seminars consist of a series of six two-hour lectures given by Dr. Martin Barr, associate professor of Pharmacy at the Philadelphia College of Pharmacy and Science. Dr. Barr is also an associate in dermatology in the graduate school of medicine of the University of Pennsylvania. His topics include: Theories of Emulsification; Chemical and Physical Properties of Natural Emulsifiers; Chemical and Physical Properties of Surface Active Agents; Formulation and Preparation of Emulsion; and Properties of Emulsion and Their Evaluation. The series is under the sponsorship of the College of Pharmacy Alumni Assn. and is directed by an advisory committee which includes James Murray, Bristol-Myers Co.; Irving A. Schlakman, Purdue-Frederick Co.; Sabbat J. Strianse, Shulton, Inc. and Walter Wynne, Givaudan-Delawanna Inc.

Fair Trade on a National Basis Sought

Fair trade on a national basis is provided in HR 10527 introduced in Congress by Rep. Oren Harris of Arkansas. The bill applies the principle of fair trade on a federal basis to goods moving in interstate commerce. A united front to support the bill is sought by the National Assn. of Retail Druggists and the Bureau of Education on Fair Trade. The present federal law merely authorizes states to adopt their own fair trade laws, many of which have not been upheld by the state courts.

French Perfumers Appeal to U. S. Supreme Court

The decision of the U. S. District Court for the Southern District of New York which enjoined Guerlain Inc. from stopping others from importing Guerlain toiletries for which it owns the United States trade mark has been appealed to the United States Supreme Court. Parfums Corday and Lanvin Parfums whose cases were tried with Guerlain's have also appealed to the U. S. Supreme Court. The tariff laws and the U. S. Trademark Law permit the United States owner of a trade mark to exclude foreign goods with the same trade mark. The lower court held that these do not extend to a domestic affiliate of a foreign concern. It held that Guerlain had used the trade mark and tariff laws to monopolize Guerlain toiletries in violation of Sec. 2 of the Sherman Anti-trust act. Guerlain and the others claim that their trade mark rights protect them against anti-trust charges.

Remington Rand to Offer Shaving Cosmetics

The Remington Rand electric shaver division of the Sperry Rand Corp. is to introduce shaving cosmetics. These include a pre-shave powder stick and pre-shave and after-shave lotions. The division is one of the largest manufacturers of electric razors. Gen. Douglas MacArthur is chairman of the Sperry Rand Corp. which manufactures gyroscopes, business machines and equipment and numerous other products.

U. S. Warns Against Press-On Nail Polish

The Food & Drug Administration has appealed to dealers in cosmetics to return to the manufacturer all stocks of Ten Day Press-On nail polish. The action was taken in cooperation with the manufacturer, Harrison Laboratories, New Rochelle, N. Y. The Food and Drug Administration announcement stated that plastic nail covering can cause peeling, splitting and breaking of nails and that more than 700 women have complained to it of injuries. M. I. Schultz president of Harrison Laboratories stated that over 32 million applications have been made of the plastic strip fingernail coating since it was launched a year ago and that in that time there were no complaints from dealers and less than 600 complaints from users—or less than one complaint in every 40,000 applications. He also pointed out that it is common knowledge that an insignificant portion of the population always reacts badly to any kind of nail covering. The product was tested and medical authorities were consulted, he added, before the product was put on the market.

Recognition

The cosmetics chemist's thinking starts with the consumer. He knows that the important point about the point of sale is this — the shoppers' first introduction to your product is through sight and smell. And when they encounter a fragrance that they recognize as authentic — they're delighted, and they're *yours!*

So many leading cosmetics achieve this clean, fresh, floral brilliance with Verona products. Why not try some of the special Verona developers and extenders listed at the right — see for yourself how beautifully they bring out the latent qualities, hit and *hold* the piquant round notes you're striving for. We will gladly send samples on request.

A FEW VERONA SPECIALTIES

RESEDALIA, an acetal.
VERONOL, an aldehyde.
CYCLAMAL, cyclamen aldehyde.
ROSANOL, an acetal.
PHENYL ACET ALDEHYDE PHENYL GLYCOL ACETAL
TERTIARY BUTYL DI METHYL CUMARIN
ORYCLON
FLOWER OIL WHITE LILAC.

VERONA
Aromatics Dept.

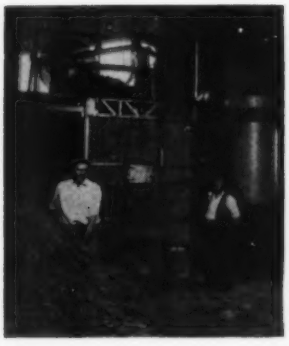
PRODUCTS BUILD SALES FOR *Your* PRODUCTS

VERONA CHEMICALS A Division of Verona-Pharma Chemical Corp.

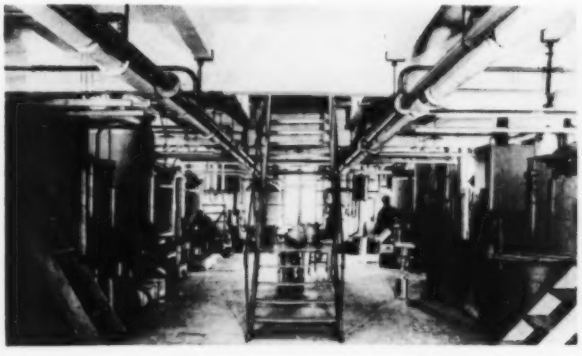
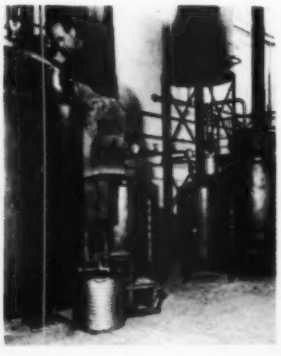
Plant and Main Office: 26 Verona Avenue, Newark, N. J. 1210 Rosedale Avenue, Chicago, Ill.



CAPACITY



QUALITY


onkaire

has an enviable reputation; having made a marked contribution to the success of so many perfumes, colognes and toiletries which contain alcohol.

It really removes the sharpness of alcohol odor and lets the fragrance come through.

If you aren't already using it, write us for a sample of Tonkaire and directions for use. You'll really be amazed at the results!

COMPAGNIE PARENTO

INCORPORATED

CROTON-ON-HUDSON, NEW YORK

NEW YORK • CHICAGO • DETROIT • LOS ANGELES • SAN FRANCISCO • SEATTLE
PHILADELPHIA • TORONTO • MONTREAL • LONDON, ENGLAND

a date to Remember

ADVANCE NOTICE OF . . .

Special

JUNE EMPHASIS ISSUE

Under direction of Maison G. deNavarre and such highly qualified co-authors as DR. PAUL G. I. LAUFFER, G. KEMPSON-JONES, WALTER WYNNE, PHYLLIS J. CARTER, MORRIS ROOT.

UP-DATING THE SUBJECT OF . . .

COSMETIC EMULSIONS

Not just a technical article. Not just a multiple page feature.
But a basic guide and reference. Includes equipment, materials, formulations. And Aerosol Emulsions.
Tables, charts, graphs, formulas and procedures.

For Further Information: Write John H. Muller

TENTATIVE CLOSING DATE

American Perfumer
AND AROMATICS
48 West 38th Street • New York 18, N. Y.

*Meranol**

The embodiment of perfection in Geraniol. As in architecture there is grandeur in simplicity, so in Meranol the removal of the obscuring impurities reveals the essential beauty of Geraniol. If the costly research and development devoted to PURE PERFUMERY CHEMICALS had been expended on Meranol alone, the result would have justified the effort.

Full scale commercial production today permits us to offer a pure Geraniol at a price little above that of the standard product. Regardless of the source from which it is obtained, exhaustive purification produces a constant result — the perfect Geraniol.

* ONE OF THE ABRAC PURE PERFUMERY CHEMICALS

ABRAC A. BOAKE, ROBERTS & COMPANY LIMITED · LONDON · ENGLAND

AGENTS FOR U.S.A. TOMBAREL PRODUCTS CORPORATION · 725 BROADWAY · NEW YORK 23

AERO SCRIPTS

Jack Pickthall*

On the 27th November, 1957, the Pressure Packaging Discussion Group held another meeting. This was designed specially to let members hear two distinct sides of cosmetics in so far as they could be used in pressurized containers. The manufacturer's point of view was put forward by Mr. T. J. McCarthy of Elizabeth Arden. As Mr. McCarthy pointed out, he was speaking from his own personal point of view, making use of the way in which aerosol packaging had been approached by his own company. He was able to demonstrate his subject by showing four distinct aerosols.

1. A perfume mist which was packed in a plastic coated glass aerosol and which contained a high perfume content.
2. A hair spray.
3. A foam shaving cream.
4. A sun-tan lotion.

It is to be realised that Elizabeth Arden cater for a section of the market in a price range rather above the popular. For this reason he felt that his and other similar firms may find that the aerosol technique had only a limited application. As far as the perfume mist was concerned, the pack is expensive and the retail price high and for this reason, limited sales were to be expected. Mr. McCarthy thought that the hair spray was the ideal type of product for the aerosol pack and felt that even in the very high price range, this could be a successful item. Of the foam shaving cream, this had already proved quite successful, but again, it is expensive and rather more in the line of a special gift, so that one might anticipate the average man would not buy it. The sun-tan lotion, although an effective product under normal conditions, lost some of its appeal if used on a windy beach.

One of the main difficulties confronting a cosmetic manufacturer was the limited type of container, unless one was prepared to consider considerably increased costs. It was not easy to persuade a packaging firm to make something different in the first place, and even if this was done, then the price became prohibitive. Mr. McCarthy felt that one eventually fell back on a standard metal container which, however well dressed up it might be, was still essentially a can. The virtue of this approach was, of course, that it could be mass produced. Nevertheless, he felt that manufacturers in general could be a little more flexible and a little more willing to experiment and give service to the smaller customer. He felt there was a necessity for someone prepared to give an individual touch to the aerosol pack so that the cosmetic manufacturer could offer to the public something a little more distinguished than the conventional container. In discussing the importance in price, he thought 3d for a can and 5½d for the valve even on a standard container, meant an expensive start. In his opinion, the Aerosol pack was most suitable for liquids and creams but that when considering powders, he thought women preferred the luxury of a large puff and a bowl of powder rather than the efficient but somewhat cold spurt from the aerosol can. In the same way, he felt that women would always prefer a beautiful cut glass bottle for their perfumes rather than the present aerosol containers. He felt also there may be some prejudice against a perfume which is admittedly mixed with a gas. He further pointed out that there is a certain reluctance among the consumer public to throw away something which still looked to be in working order. In this connection, he mentioned how keen women were to buy refills for their lipsticks and in fact, sometimes complained when the tenth refill did not perform adequately in the original case.

Mr. McCarthy summarized by saying that it is absolutely necessary to bring down the price of the pack itself and to introduce a greater variety in form. This applied to both the metal and glass container. He thought that at the moment the aerosol pack would not replace anything already on the market, although the hair spray could definitely be regarded as added business.

This talk was then followed up by a speaker, who shall remain nameless. This speaker commenced by saying that even when discussing cosmetics which are presented in the more conventional type of

* Chief Chemist, Polak & Schwarz, England, Ltd.

de Laire

Renowned the world over for the finest perfume specialties, aromatic chemicals and fragrance creations for perfumes, soaps and cosmetics.

Over 80 years of experience and outstanding achievements in research and creation at your disposal.

DE LAIRE, INC. 242 WEST 30th STREET, NEW YORK 1, N. Y. • Telephone: CHickering 4-7455

pack, it is difficult to decide where a cosmetic starts and finishes. Well defined products include:—

Solid creams or emulsions.
Liquid emulsions.
Oily non-emulsified products.
Aqueous solutions.
Spiritous solutions.
Pigmented creams and lotions.
Powders.
Lipsticks.
Perfumes.

Closely allied to the above are shampoos, hair reconditioners, medicated creams, depilatories, hair waving and setting preparations and nail varnishes. Less closely associated are toothpastes and soaps. All the above are applied to some part of the human body and are designed to increase personal appeal. In the main, cosmetics are sold in jars, bottles, boxes, tins, tubes and getting nearer to Aerosols, in squeeze packs. The Cosmetic producer is going to ask himself three main questions:—

I Is there any advantage (to either consumer or my firm) if I decide to place one or more of my cosmetics in an Aerosal container?
II Will the appearance or efficiency in use be different in this new pack?
III If I achieve certain sales in this new field, will it only be at the expense of existing business?

After all, his present packs have a huge customer acceptance, so why should he change? In fact, unless he can be sure of achieving increased sales, there will be little reason for changing, although in this connection, once his competitors have started to use the new type of pack, he may be forced to follow. This is a new field to him and he knows that he will have to undertake considerable research before he dare place his new product on the market.

The speaker then gave consideration to those cosmetic products which have been packed as aerosols with undisputed success. Number one is, without doubt, the hair lacquer. This product can only achieve its object when applied to the hair in a fine spray and the aerosol method was perfectly obvious. Further, it is impossible with a gum-like solution to handle from a conventional container. Perfumes have been successful because of the neat and handy way of application. Shave creams have been very successful in America—less successful elsewhere. Perhaps convenience is the main attraction here, although more and more people are impressed with the merits of the product itself. Other products which have achieved some measure of success are hand creams, perfume creams, personal deodorants, anti-sunburn preparations and brilliantines.

What are the main claims for an Aerosol preparation?

(a) Ease of application.
(b) Uniformity of application.
(c) Efficiency of application.
(d) Cleanliness.
(e) Absence of air in the system.
(f) New sales appeal.

On the debit side might be quoted:—

i Increased cost.
ii Need for reformulation.
iii Changed appearance of product.
iv In some cases labelling difficulties.

Then followed a brief description of Aerosol Cosmetics divided into fairly well defined categories:—

A. SURFACE SPRAYS.

1. Handerch!ef perfumes and toilet waters.

These consist essentially of propellant, alcohol (and perhaps water) and perfume. Ideal conditions of packing are glass (plastic-coated) and propellant, mainly tetrafluorodichloroethane with small amounts of difluorodichloroethane. Even in the absence of metal, monofluorotrichloromethane should be avoided. Rarely, if ever, can an established perfume be employed in this new form without modification. The often claimed advantage of absence of air is, perhaps, over emphasized. Perfumes will come into their own when the metering valve is freely available.

2. Hair lacquers.

Up to date, two types have been used; one based on shellac and the second on polyvinylpyrrolidone.

Shellac imparts brilliance to the hair but the film is too hard and difficult to remove by washing and may in fact give a powdery-dandruff like effect. Hydrophylic properties must be given to the shellac by the addition of softening and spreading agents. Castor oil-glycols and glycol esters are effective. The modified shellac (which must be dewaxed but not necessarily bleached) is made as an alcoholic solution. The amount and type of propellant depends upon several factors which include, inflammability, spray pattern and type of container.

Polyvinylpyrrolidone is perhaps the most used type of film-forming agent. 10% dissolved in alcohol gives a very good film which suffers from the fact that it is too hydrophylic, tending to take up water and become rather dull and tacky. Hydrophobic properties can be given by additions of shellac, ethyl cellulose and certain synthetic resins and natural waxes.

3. Personal Deodorants.

These are in the main alcoholic solutions of active ingredients such as aluminum chlorhydrate, hexachlorophene, cationic substances etc. The very nature of these ingredients means problems of corrosion where metal containers are concerned.

4. Sun-screen Preparations.

Most of the accepted sun-screening agents may be used in Aerosol form, e.g. salicylates, anthranilates and amino benzoates. When processed with alcohol the salicylates and anthranilates may form the ethyl esters with development of intense odour. Methyl para dimethyl amino benzoate is effective and economical in use. Useful additives are glycerol, isopropyl myristate and traces of a wetting agent and silicone oil. Oil based screens can also be dispensed. The main carrier could be mineral oil plus iso propyl myristate and again, silicone oil will afford water-repellency. Relatively high amounts of propellant are required—about 50% of the trichloromonofluoroethane/dichlorodifluoroethane mixture.

B. FOAMS.

1. Shave-creams.

The classical example is, of course, the shave creams. Best results are obtained with aqueous solutions of the triethanolamine soaps of stearic and lauric acids. An essential ingredient is glycerol to impart ease of spread and to retard drying out. Stability and "body" can be effected by including products such as petroleum jelly, lanolin, cetyl alcohol, glyceryl mono stearate, methyl cellulose etc. The soap content may be as low as 8% and the glycerol as high as 10%. About 10% of propellant is employed. When difluorodichloromethane alone is used, the foam is forcibly ejected. If a mixture of this propellant and tetrafluorodichloroethane is used, the foam comes out more slowly.

2. Hand creams.

Ideal results are obtained when the emulsifier is a mixture of cetyl alcohol and a cetyl alcohol ethylene oxide condensate. The O/W emulsion may contain up to 90% of water and will include lanolin, mineral oil, iso propyl myristate and glycerol. The types and amounts of propellants are as for shave creams.

C. POWDERS.

Although face-powders in Aerosol form offer no possibilities, there is a place for body powders such as talc. One of the best I have seen is a "Girdle Spray" from America. It gives slip to the garment and does away with the traditional "wriggle" and is, in addition, a deodorant. Valve efficiency is an important feature of these Aerosols. Formulation is based on talc.

The speaker admitted that in this short talk, he had not even covered all the cosmetic preparations already on the market. He could see no possibility for face powders and lipsticks and thought that shampoos in aerosol form were doubtful. He realised that he may well be proved wrong in this suggestion, but thought that one of the main functions of a shampoo, which was the gentle massage of scalp and hair, was mainly lost when one was dealing with a pre-formed lather. He realised that he had not spoken about aqueous sprays and that this was a section that really must be considered, as often it is necessary to spray a water-soluble active ingredient. In some cases it was not possible, or desirable, to add a co-solvent such as alcohol. He did not think that the three phase system gave very acceptable sprays. He mentioned that the spraying of water by means of an O/W emulsion, lead to foam formation, but that quite effective

continued on page 34

HELIOTROPINE . . . for sweet, floral fragrances

GERANIOL . . . the essence of rose geranium . . . for soap and perfumery

SAFROL . . . sassafras . . . long-lasting, with unusual stability

TERPINYL ACETATE . . . widely used bergamot-type . . . economical, versatile

the essence of success in soaps and perfumes!

These four popular fragrances from our extensive library are available for immediate delivery. They're manufactured in our plants under the same rigid quality control as Penick pharmaceuticals.

You will find these aromatics fully compatible with most formulations. Their stability makes them ideal for aerosols. In soaps they give excellent penetration.

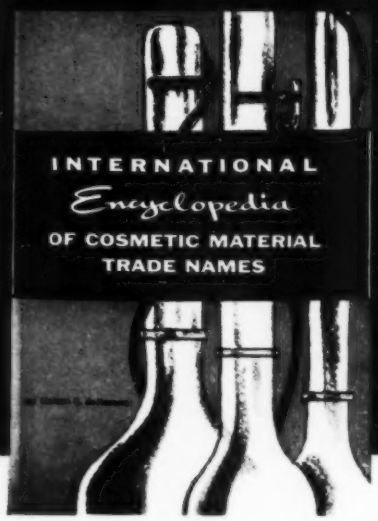
We will be glad to send generous samples of these and other successful scents or to assist in developing unique fragrances especially for you.

PENICK

Perfume, Flavor and Aromatic Chemicals Division

S. B. PENICK & COMPANY 50 CHURCH ST., NEW YORK 8 · 735 W. DIVISION ST., CHICAGO 10

IN THE dark
ABOUT TRADE NAMES?



When you need information about the trade names of cosmetic materials, see the brand-new **"International Encyclopedia of Cosmetic Material Trade Names,"** by Maison G. deNavarre.

For the first time in the history of the cosmetic industry, this international encyclopedia gives you a complete listing of more than 3,000 cosmetic material trade names . . . each with a quick, concise description of components . . . each completely cross-indexed by type of product . . . each with full name and address of manufacturer or supplier.

Just published, this down-to-earth handbook will be a valuable working reference guide for every chemist, buyer, and supplier in the cosmetic industry. Over 350 pages, cloth binding, $7.50 per copy postpaid.

IN USING COUPON TO ORDER, KINDLY PRINT!

American Perfumer Magazine, Book Div.
48 West 38th St., New York 18

Please send me ..... copies of deNavarre's INTERNATIONAL ENCYCLOPEDIA OF COSMETIC MATERIAL TRADE NAMES at $7.50 per copy.

☐ I will remit on receipt ☐ I enclose $_____

NAME _____

COMPANY _____

STREET _____

CITY _____ ZONE _____ STATE _____

SINCE 1768 the House of Chiris has dedicated itself to the Fifth Sense. In the development of Essential Oils, Floral Absolutes, Chemical Isolates, Synthetic Chemicals, and all those creations and specialties which combine industrial aromatics with natural products and produce fragrance, the House of Chiris has a cherished history. Today Chiris maintains laboratories headed by experienced chemists who have available to them not only the accumulated knowledge of generations of Chiris perfumers and chemists, but also the research facilities of five modern laboratories located in Grasse and Paris, London, Sao Paulo (Brazil), and New York City. Whether Essential Oils, Isolates, or combinations thereof, are used as fragrance constituents by the perfumery, soap, cosmetics or allied industries, we are happy to be consulted.

Replica of perfume bottle used in the year 1768

ANTOINE CHIRIS CO., INC.

220 East 23 Street, New York 10, N. Y.

GRASSE · PARIS · LONDON · SAO PAULO

QUESTIONS & ANSWERS

1277: QUINCE MUCILAGE

Q. *What is the best substitute for quince in thickening hand lotion? Can one buy quince (clean) mucilage and if so, where? What, in your opinion, is the best wetting agent and can it be used with water and alcohol combined? O. B. D., Calif.*

A. There is no such thing as a "best" substitute for quince in thickening hand lotion. Actually, flaxseed has been used as has psyllium seed. More recently, such things as Carbopol 934 have been used although this does not give the same type of character as does quince or linseed mucilage. There is no such thing as a "best" wetting agent. It all depends upon what purpose it has to serve. Practically all wetting agents have to be used with water and some are quite compatible with alcohol and water. Since we do not know your purpose, it is hard to make any suggestion. If you have something specific that you would like to know, please let us hear from you again, and we shall do our best to give you some help.

1278: FORMULATION

Q. *We have been asked to help one of our pharmacists find a formula for a preparation which could be used for masking facial disfigurations. Specifically he wants something resembling "Cover-Mark." R. A. W., Oregon.*

A. We do not know the composition of "Cover-Mark." As a starter, you can use petrolatum and add to it approximately 25 per cent titanium dioxide suitably colored. The amount of titanium can be reduced or increased depending on the amount of covering desired. If the material is to be molded into a stick, wax must be added. It is also possible to replace part of the petrolatum with mineral oil.

1279: PERFUME STICKS

Q. *We noted a reference to perfume sticks employing some of the new solvents in a recent issue. Can you supply us with a formula for perfume sticks based on such solvents. I. K. M., Montana.*

A. It is rather difficult to give you the exact formula for these because of the individual variations in what people think is the right composition. You can take any one of these solvents and solidify it with sodium stearate or a wax to suit your particular requirements. Generally from 5 to 10 per cent sodium stearate solidifies these solvents. Some times waxes can be used but this will depend upon the solvent involved. This is about all we can suggest to you as a basis for trial but start with sodium stearate and then you can make your modifications as you proceed.

1280: CLEANSING CREAM

Q. *We would like a formula for a liquid cleansing cream. C. T. A., Washington.*

A. Enclosed is a formula for a liquid cleansing lotion which will help you get started on your experimental work on this product. Any suggestions of materials or formula is no guarantee of performance, of course, nor does it mean that the product has been tested. As far as we know, no patents are involved, but that is a matter you will have to check for yourself.

From time to time suggestions have been and will be made in this magazine with respect to processes, devices, materials, appliances, equipment and the like. It is not practicable for the writers and editors to have a patent search or examination made in connection with each such suggestion. Our readers are, therefore, requested and indeed urged to determine for themselves whether any patent or other right will be violated before acting on any such suggestion.

SMART MERCHANDISING BRINGS HER IN

Product Performance Will Bring Her Back!

REHEIS

BASIC ANTI-PERSPIRANT INGREDIENT FOR GELS

CHLORHYDROL S-5

(aluminum chlorhydroxide complex—modified) Solid form for grease and gum free alcohol gels.

And the best way to insure effective, dependable deodorant and anti-perspirant performance is to depend on *Reheis* for your basic ingredient. Your own merchandising program introduces the customer to her first purchase of your product. Superior performance is all important in selling the second.

Other fine Reheis anti-perspirant chemicals

CHLORHYDROL (aluminum chlorhydroxide complex)—for anti-perspirant creams, lotions, sprays and powders.

CHLORACEL (sodium aluminum chlorhydroxy lactate complex)—available as a 40% w/w solution for use in making Cologne type sticks.

Reheis can tailor any one of their anti-perspirant chemicals to meet the needs of your products. We suggest you write for free data and samples . . . and learn how Reheis quality can help your product's *repeat*-sales record.

REHEIS CHLORHYDROL S-5 Anti-perspirant gives *your* product *all* these advantages.

- **Effective anti-perspirant action**
- **Fine deodorant qualities**
- **Non-destructive to fabrics**
- **Non-irritating to skin**
- **No buffering required**
- **Freshening astringent property**

FINE REHEIS CHEMICALS

REHEIS COMPANY, INC.

Manufacturers of Fine Chemicals

BERKELEY HEIGHTS · NEW JERSEY

4012

DESIDERATA

Maison G. deNavarre, M.S., F.A.I.C.

Nail Hardeners

There's a bit of excitement about these products lately. People wonder if they can perform as claimed or if they are just a gimmick. One the writer examined was acid in reaction (pH6.7), ran over 10% solids, gave a qualitative reaction for formaldehyde, sodium and potassium. There was a trace of surfactant present.

Of course it is well known that skin, nails and hair are chemically related. It is further known that aldehydes do react with them all. It is also known that aldehydes are generally primary irritants, hence are rarely used in cosmetics—even as preservatives.

So, if these products are not irritating when used as directed, they could be effective "hardeners".

There is another type of material that could be used namely, the hair type of hydrolysate, usually colloidal in type, which is being included in hair waving preparations to "recondition" hair or to replace some of the withdrawn amino acids or to just make it look, feel and handle better. Haven't tried this idea, so don't know how good it is. Seems worth trying, if methionine and gelatin orally are really doing any good. This is going to be a bigger problem apparently as time goes on.

Antioxidants

One supplier is offering a variety of antioxidant combinations all made up for use. They are mixtures of all the good, safe, food grade materials such as butylated hydroxyanisole, butylated hydroxytoluene and propyl gallate, together with synergists like citric acid, all dissolved either in propylene glycol, vegetable oil or mono-di-glyceride mixtures.

Everyone knows the problems associated with dissolving some of these effective antioxidant materials, hence the availability of these mixtures truly serves a useful purpose.

Lanolin Derivatives

Did you know that you can buy for example lanolin alcohol esters of the polyunsaturated fatty acids (so-called vitamin F), or the ricinoleate of lanolin alcohols? Just thinking about it, must give you some ideas about what and where you could use these materials. While they are not "just off the fire" they are not old either.

In this connection, there are available solubilised lanolin alcohols, solubilised lanolin, acetylated lanolin fraction, lanolin fatty acids, alcohol soluble lanolin, lanolins to give cloudy colloidal solutions in mineral oil, liquid lanolin and all kinds of water soluble lanolins. So if you are a lanolin devotee, you can put it into any kind of products now.

Milk in Cosmetics

From the beginning of time, milk has played some role in skin beauty. For all these years, straight milk is still highly prized as an incomparable cosmetic, rich in fats, minerals, vitamins, amino acids, and in certain seasons of the year, possibly other factors.

Shortly after the turn of the century milk was curdled and the whey discarded. By further manipulation, addition of some emulsified fat, preservative, rose-almond fragrance and a pink color, the famous rolling massage cream came into being. It had its day and passed from the general cosmetic scene, although a certain amount is still made and sold.

In the 1920's there was a fluttering about "Bacillus acidophilus" and "Bacillus Bulgaricus," for internal use. If my memory serves me correctly, even some cosmetics were made with these materials. But they got lost in the fast shuffle that got its start at the end of the war in 1918.

Now it is "activated lactic ferments," whey and milk casein hydrolysates. SCHIMMEL BRIEFS mentions French Patent No. 1,096,-421 covering a cream containing around 30 per cent fats, 20 per cent of a *Lactobacillus acidophilus* culture and water to make up the balance.

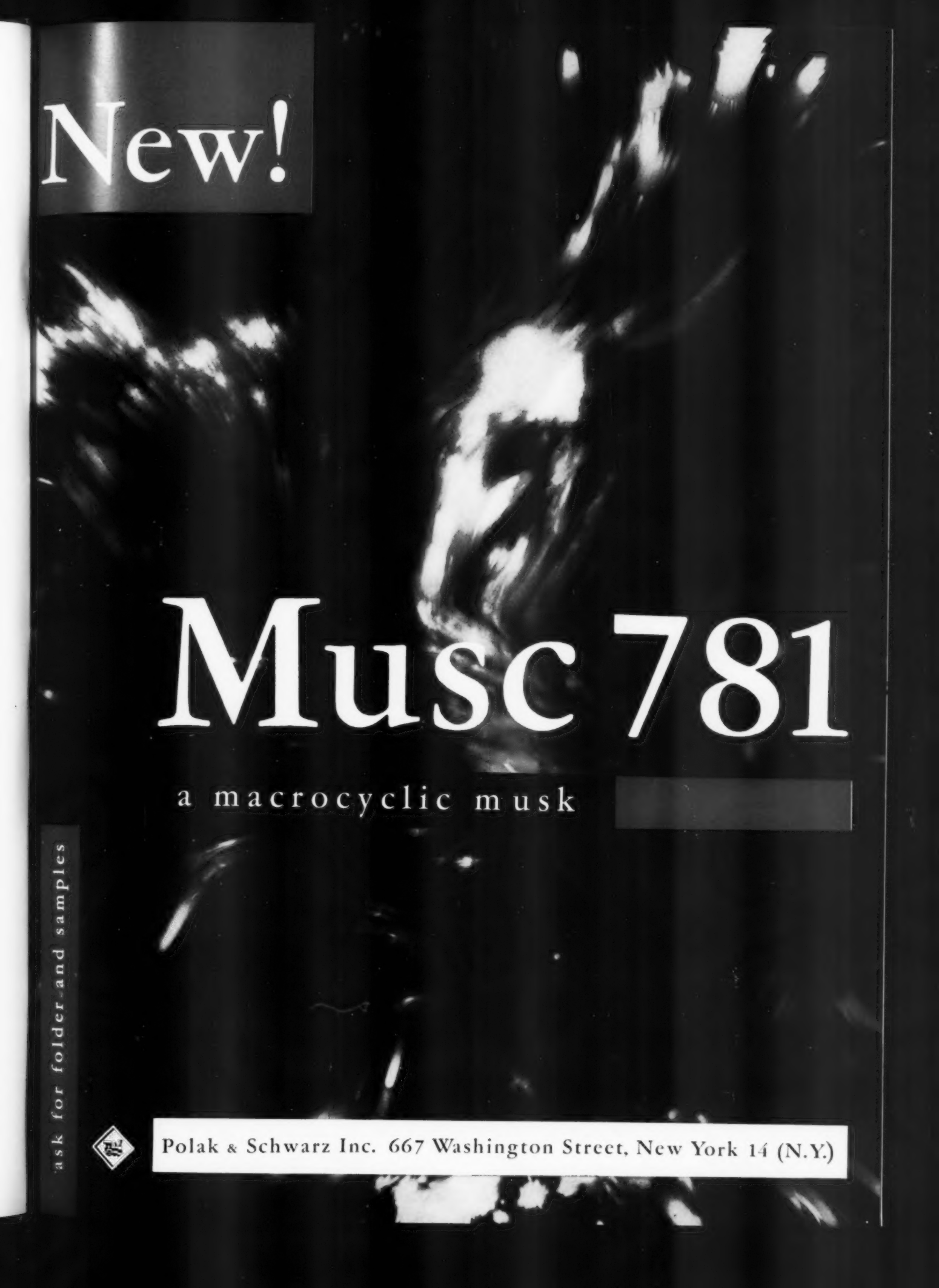
Usually these bacilli are grown in beef broth cultures. The resulting product contains lactic acid, protein degradation products, probably enzymes liberated by the bacteria, possibly some vitamins and other products of unknown composition.

Twenty-five years ago the writer made cosmetic creams containing bacterial lysates emulsified in an absorption base. Users claimed many and varied benefits. Maybe creams containing *Lactobacillus acidophius*, line or lysates do have something not found in other creams. A well controlled clinical trial would establish the facts. For acid creams and lotions are here to stay for a while. Maybe we should know more about them.

Notes

While the Society of Cosmetic

Chemists are racking their brains for methods of evaluating the technical and use value of creams and lotions one of the consumer publications runs a comparison of a couple of dozen hand lotions for their effectiveness—it is interesting to note the attention they pay to the odor of the product. . . . A new supplier of laboratory aerosol units has just sent around some leaflets on the equipment he is offering—the units look like they are matching so that they can be set up in a series and give a good appearance. . . . Every one should have a copy of the Internal Revenue Bulletin No. 1958-6 which lists the taxable as well as the non-taxable toilet articles in fairly well defined classes—thus theatrical make-up, most baby products, electric preshave products and many others are not taxable. . . . General Mills road show or seminars, call them what you like, will undoubtedly prove valuable public relations if no more—one recalls the seminars on sorbitol not too long ago—this observer thought they were quite successful largely because you met the important people in comparatively small groups enabling you to get a lot of discussing done—a similar seminar on the various phases of nonionic surfactants would be a great thing about now—for as far as the detergent field is concerned, the materials are going great guns, but from a cosmetic point of view, some mutual discussing would help a lot. . . . There is an interesting conclusion to an article in the Quarterly Bulletin of the Association of Food and Drug Officials regarding the ingestion of glass and metal particles by dogs for 2 months and rabbits for 1 month namely that there was "no injury in the gastrointestinal tract of these animals"—all of which has a bearing on glass and metal fragments in foods and beverages. . . . Best wishes to the new French publication sponsored by the SFC entitled Cosmetologie, now in its third or fourth issue—the previous ones carried some of the papers given at the seminar in Paris last July jointly with several otther European groups and the Society of Cosmetic Chemists. . . . Prior, Rustad and Cronk (J. Invest.Dermatol., Dec. 1957) discuss pathological changes following the use of preparations containing sodium zirconium lactate. . . . Wonder just what purpose is served by squalene which is a normal constituent of sebum.

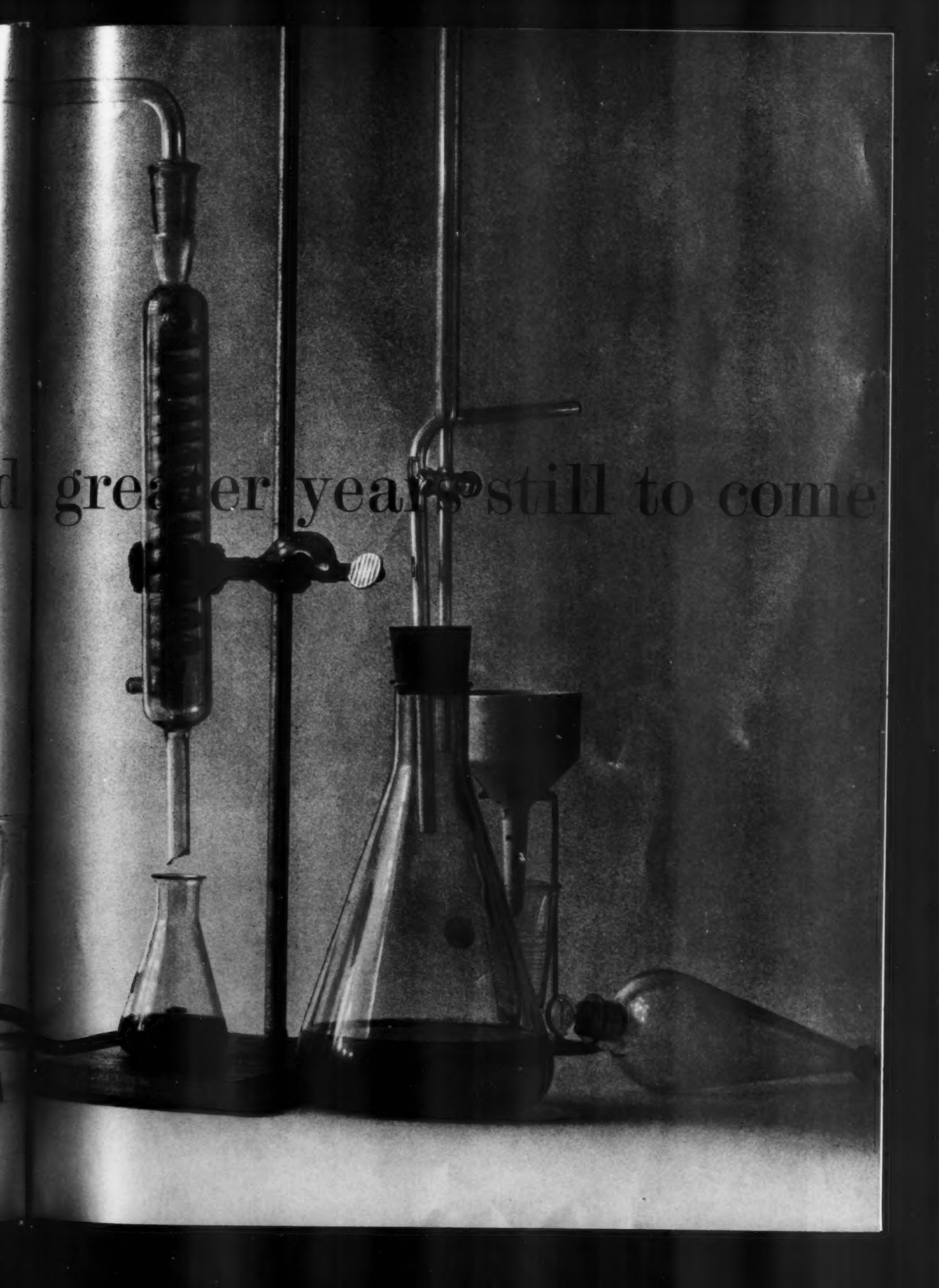

New!
Musc 781
a macrocyclic musk
ask for folder and samples
Polak & Schwarz Inc. 667 Washington Street, New York 14 (N.Y.)

35th Anniversary. . . and g

For 35 years Felton has made its successful products a by-word in the industry. Through resourceful and imaginative effort, and an inherent flair, Felton has achieved a position of prideful importance. In the many years to come Felton will continue to be a source of rich inventiveness and fluent skill in transforming industry needs into new developments for greater success.

Felton Chemical Co., Inc., 599 Johnson Avenue, Brooklyn 37, N. Y.

Sales offices and plants in major cities, Canada and overseas.


d greater years still to come

Why..."Encyclopedia of cosmetic material trade names"?

First, let it be known that the title, as lengthy and wordy as it is, does not begin to describe the full content and function of this great reference work by the eminent deNavarre.

To be sure, it presents a comprehensive, never-before published, **international** listing of more than 3000 cosmetic material trade names.

Of equal if not greater importance, the Encyclopedia serves to identify the composition of the particular materials and in many instances also lists specific types of cosmetic items in which they are used . . . plus a complete, cross-indexed classification of the various types of materials . . . plus the complete name and address of the supplier of each material.

Over ten years ago deNavarre saw a real need for such a technical reference book as this. That is why and when he started to compile the necessary material from all over the world. In the interim years, as the number of trade name materials grew, as new sources entered the field, the need for this type of reference volume grew apace. And over these years deNavarre religiously devoted time, effort and care in building, editing, refining and **organizing** his expanding storehouse of material.

Obviously, this Encyclopedia, because of its definitive content and function, because of its finger-tip reference and cross-reference features, because it does represent the answer to a long felt growing need, will serve its highly selective subscribers not only well but over and over again for years and years to come.

426 pages, 6" x 9", clothbound, shipped postpaid anywhere in the world at **$7.50 per copy**. To order copies, write Book Division, **American Perfumer & Aromatics, 48 West 38th Street, New York 18, New York, U. S. A.**

AEROSOL PACKAGING

can give your sales "steamroller" power!

Here's how General Chemical can help you get started...

If you've been watching the aerosol field, you've seen product after product come out in aerosol form and roll over its competition with irresistible force.

Could *you* market an aerosol that would have similar success?

A qualified "yes"

If your products can be sprayed, brushed on, dusted or daubed, aerosol packaging may well give them that vital "push." And now's the time to get started—while the field is still growing... while consumers still think of aerosols as "new" and exciting.

General Chemical can help you

As the producer of "Genetron" aerosol propellants, General Chemical has the basic knowledge and specialized experience you need to get started. We will be glad to supply market information and technical data. We can tell you about promising new types of aerosol formulations developed in our laboratories. We can tell you about qualified contract fillers—who can take over the entire production job for you, from test market quantities to commercial production.

The fact is, you don't have to invest a cent in special equipment or personnel to get into this profitable market!

These information services of General Chemical are available to you without cost or obligation. Why not take advantage of them now? Just call or write "Genetron" Department, General Chemical Division, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6, N. Y.

Allied Chemical

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N. Y.

The right propellant for every aerosol need

genetron®
aerosol propellants

sprays could be produced by making the aqueous portion, the internal phase of an emulsion.

The general discussion was opened by Mr. Goddard of Metal Box who fully and expertly told the meeting of some of the difficulties which beset the container manufacturers. He said that his company now had a range of twelve standard colours and would also consider mixtures of these colours, but that a minimum run of fifty thousand tin-plate containers was really necessary. At some length he spoke of the difficulties of printing and the necessity for careful cleaning of the machine after each colour run. As Mr. Goddard pointed out, there has to be a certain amount of standardisation and the very introduction of embellishments on a can will necessarily serve to increase prices, thus defeating the one thing they are trying to do, which is to reduce them. From the platform, Mr. McCarthy himself brought up the questioning of labelling metal cans and claimed that a high-class cosmetic should not be put in a can with an unsightly side seam.

From the hall came a question as to the patent position concerning perfume sprays. It was agreed that it would be unwise to suppose that the patent in question would not be upheld. On the other hand, it was felt that an amount of propellant which would take the perfume outside the patent could be employed, providing the bottle contained an adequate plastic coating. On the question of plastic coatings, a price of 5½d per bottle was mentioned, although it was admitted that an aluminum coating would also be expensive. There appears to be only one firm in England producing plastic coatings and the bottles imported from other countries, work out at much the same price in the end. There was some discussion on the advent of the plastic moulded bottle in nylon or similar type materials. The disadvantage of seeing the dip tube through a clear glass bottle was discussed and it was pointed out that opaque plastic covers were also available. From the platform it was pointed out that despite the many advantages of plastic moulded bottles, the question of permeability had not yet been completely overcome.

Powder products in aerosol form were criticised from the hall, mainly on account of the fact that they gave an unpleasant cooling effect. This same draw back could also apply to personal deodorants. It was felt, however, that if sprayed from sufficient distance, the cooling effects were not as bad as suggested.

The hope was expressed that more would be done in this country towards improving the important appearance of aerosol packs and at the same time, reducing prices. In this way we should be able to get somewhere nearer the variety of containers available in America, although it was generally conceded that the demand will always be very much smaller in this country.

I must say that these discussions are of immense value to everyone concerned. It gives all branches of the industry a chance to hear something about other sides and to put forward their own points of view. Whilst realising the high standards of many of the cosmetic firms, I really think that there are some excellent metal containers already on the market. For instance, there are several hair lacquers and several shave creams in the most attractive of packs and the printing is certainly a credit to both designer and printer.

We are forgetting that co-operative advertising is nothing but a discount, no matter how you try to disguise it. We forget it in our advertising. Two items in stock, one with cooperative advertising, one without—and which gets promoted? We forget it even when the item without co-op has often a far higher markup. Heaven knows we spend too much on buyers mistakes, on hunches and traditions—and we're always pinched for funds to promote bread-and-butter profit-makers. Yet we dig into budgets to put up our half of many a cooperative advertised item—just because somebody's matching our money—even when it isn't justified." —*Paul H. Howard, sales promotiin manager, Rhodes of Seattle.*

Pierre Croques, Pierre Bouillette, Dr. Paul Muhlethaler and Jean Descollonges chat about the brighter outlook in the perfumery industry

Serious Pierre Deleamont, Henry Retailliau, Dr. Jean J. Martinat and Jean Claude Danzinger are attracted by a passing fancy

Roger Heco, Max Gallais and John Hourcle enjoy light refreshment before Chairmen Martinat and Muhlethaler ring the dinner bell

Philip Chaleyer and Shaw Mudge surround the notable Ernest Pierre Meunier president of the Technical Society of French Perfumers

Les Amis de Langue Francaise de la Parfumerie Hold Gala Meeting

Ernest Pierre Meunier, president of the Technical Society of French Perfumers, Paris, France, among the guests at the February 25 meeting

A perennial meeting of the Les Amis de Langue Francaise de la Parfumerie took place February 25. This selective gathering is quite unique. While it is attended primarily by the prominent masters of the art of perfumery every member is free to choose his preferred subject which is expressed in an intimate and friendly conversational manner.

It is always appropriate to give way to witticisms and repartee to which the French language lends itself so readily.

Dr. Jean Jacques Martinat and Dr. Paul Muhlethaler were the toastmasters. Ernest Pierre Meunier, president of the Technical Society of the French Perfumers, Paris, France, was present as was also a long standing friend Louis Rapin.

Pictures on page 38

a new answer
to an old problem

The problem of keeping pace with "styling" in cosmetics is especially acute with regard to fragrance. Here at *Synfleur*, our skilled perfumers and chemists have developed a number of valuable new lipstick aromatics which are unusually effective solutions to that problem. We shall be glad to incorporate recommended *Synfleur* fragrances in your lipstick mass and submit finished lipstick samples for your own determination of their appeal and value. There is no obligation.

Synfleur

SCIENTIFIC LABORATORIES, INC.
MONTICELLO, N. Y.

ATLANTA • DETROIT • NEW YORK • HAVANA • RIO DE JANEIRO • MEXICO, D. F.
Chicago • Melbourne • Burma • Hong Kong • Bogota • San Jose
Ciudad Trujillo • Guayaquil • Guatemala City • Calcutta • Wellington
Managua • Panama • Asuncion • Manila • San Salvador • Montevideo

CANADA: Herman & Leal • 637 Craig Street West • Montreal, Quebec

Rene Forster poses a question on fixation to Serge J. Lakhovsky and Samuel Eskanazy contributes his experience to the answer

Louis G. Matigot, Jean Descollonges and Eugene Roberts exchange anecdotes while waiting for the evening's festivities to begin

Jean Delavigne, Rene Greuter and George Cadgene enjoy an informal chat during the cocktail reception before the sumptuous banquet

President of Technical Society of French Perfumers Addresses American Society of Perfumers

Ernest Pierre Meunier, president of the Technical Society of French Perfumers of Paris, France, was the guest of the American Society of Perfumers at its February 19 meeting. In a brief speech Mr. Meunier discussed the work of his Society and extended a welcome to members of the American Society to attend meetings when they are in Paris.

The feature of the evening was an illustrated lecture in color of photographs taken by George Fuller, head of the Perfumery and Essential Oil Section of the Colgate-Palmolive Co. on "Rosemary and Lavandin, Some Views, Pictorial and Technical." During the past summer Mr. Fuller spent some months in Europe obtaining first hand information for his informative and interesting lecture.

Plans for the fourth annual symposium of the Society to be held in the Essex House, New York, March 20, have been completed. An excellent program has been arranged.

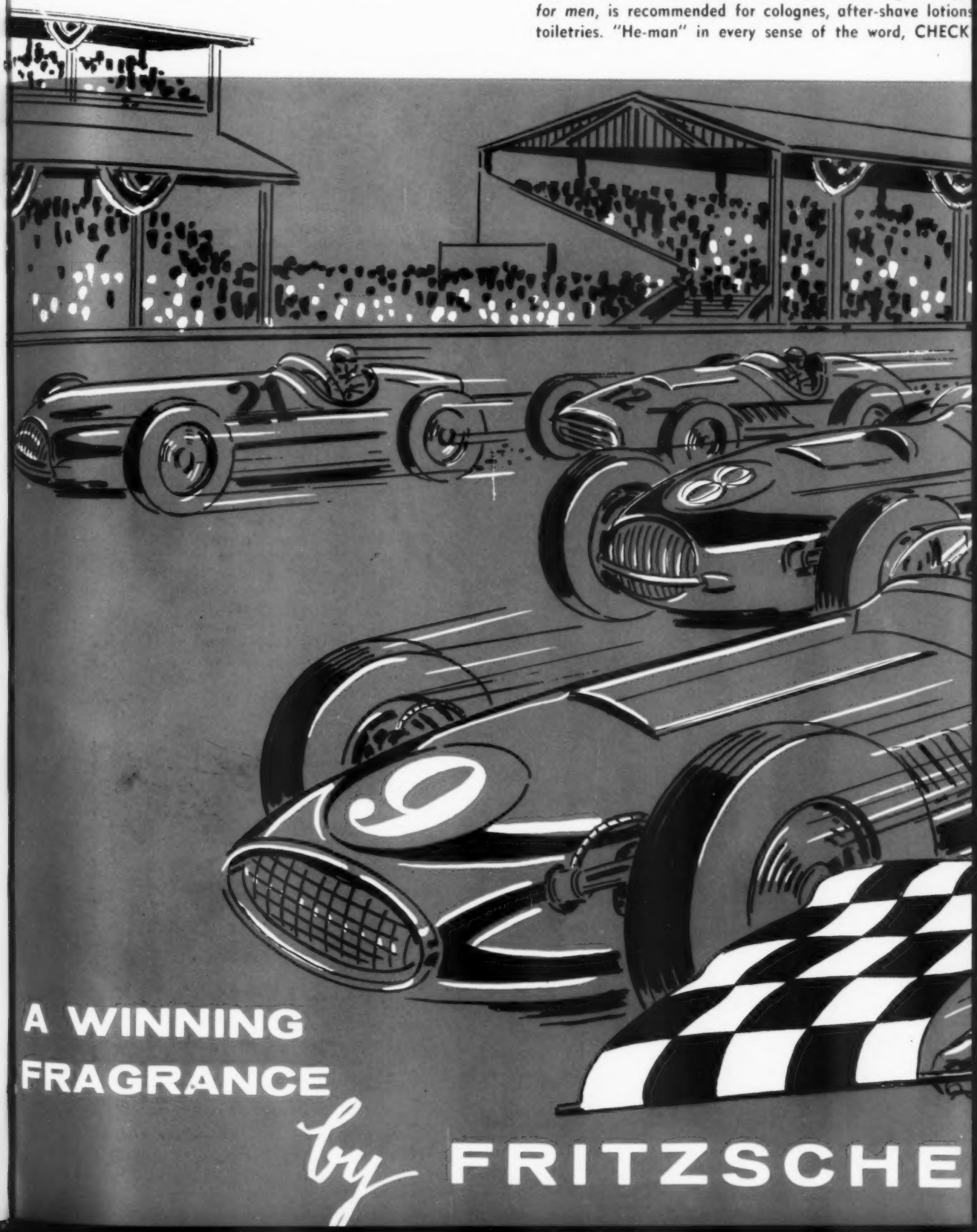
Dr. Jean J. Martinat and Henry Retailliau and their guest look forward to a widening field for fragrance in the coming year

Louis Rapin, one of the veterans of the industry, discusses the past and the present situation with Henri Costerg and Thomas Biallo

for men... in a man's world!

CHECKERE

Here they come, roaring out of the last turn—full throttle—
the straightaway! First tightly clustered, then a final bl
burst of speed and—for one—the checkered flag of vic
Symbol of a winner in this man's thrill-packed world of s
what better name for this month's FRITZSCHE "EXCLUS
than CHECKERED FLAG? This fragrance, designed espe
for men, is recommended for colognes, after-shave lotions
toiletries. "He-man" in every sense of the word, CHECK



A WINNING FRAGRANCE *by* FRITZSCHE

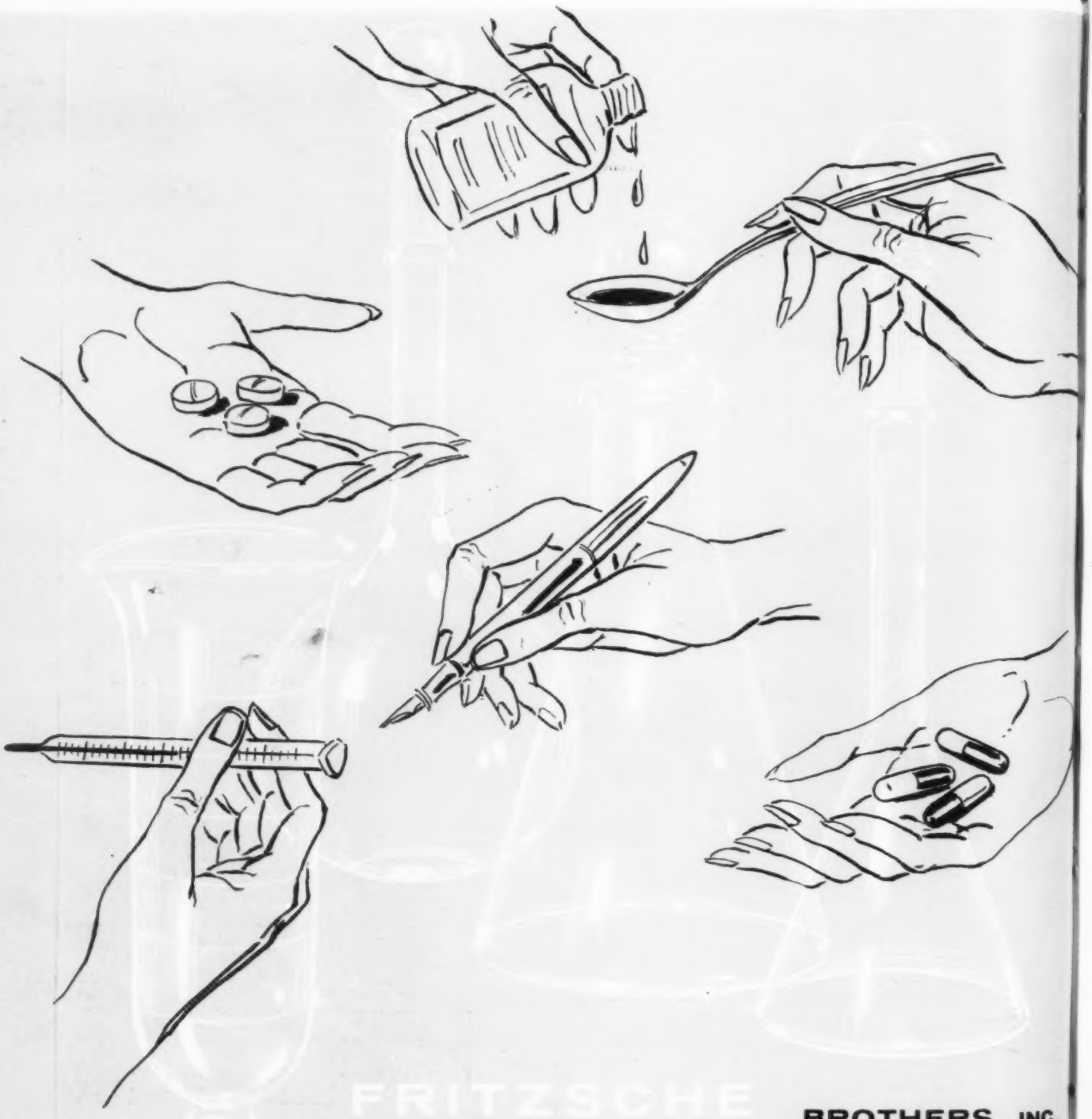
D FLAG

–into
azing
tory!
sport,
IVE"
cially
and
ERED

FLAG represents a perfume type long accepted as the fitting complement to rugged masculinity. Its theme, overall, is a complex of spice and citrus notes intertwined with rose and ylang for freshness and depth. We're sure your sampling of this attractive new fragrance will convince you of its high potential for the male market. CHECKERED FLAG carries not only the connotation of a winner, but the proven requisites of one.

FLAVORS TAKE NEW FORM

Today, pharmaceutical and proprietary manufacturers are offering many of their oral preparations in the pleasant-to-take form of *flavored* tablet, pill, capsule, powder, elixer, syrup or emulsion. Besides removing a barrier that frequently prevented such products from reaching their full market potential, the drug manufacturers did something else. They encouraged flavor research directed to the very special needs of their industry, with the result that there is hardly an unpleasant tasting medicinal product made for which there is not a whole series of appropriate and compatible flavors. . . . In this connection, it will pay you to investigate what FRITZSCHE flavor-crafters have done to provide special taste effects for pharmaceutical use.



FRITZSCHE

BROTHERS, INC.

76 NINTH AVENUE, NEW YORK 11, N.Y.

Further Laboratory Studies of Potential Anti-Seborrhoeic Agents

There has been a recent relative increase of seborrhea capitis both in the male and female. The pathogenesis is related to disturbances of the function of the pilosebaceous apparatus. The associated causes are: hormonal imbalance, impaired metabolism and nutrition, biochemical changes of cutaneous tissues of the scalp, increased bacterial flora and the incautious use of mild irritants and sensitizers (2).

We have discussed previously the importance of constitutional factors in precipitating episodes of seborrhoeic dermatitis. However, we believe that the incidence of seborrhea capitis is affected more frequently by local scalp changes, and bacterial flora which commence to flourish.

The four methods of application and utilization of anti-seborrhoeic preparations are (1):

1—The pre-shampoo application containing detergents and keratolytic compounds.
2—The medicated shampoo which contains active keratolytic ingredients.
3—The antiseptic scalp lotion which contains antiseptics and stimulants.
4—The after shampoo rinse containing a quaternary ammonium compound.

We have suggested the following requisites for potential anti-seborrhoeic agents:

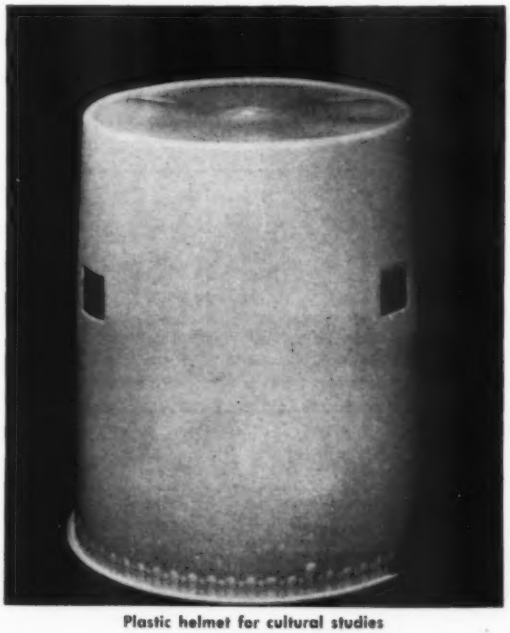
1—Bactericidal against staphylococcus aureus and albus.
2—Laboratory inhibition of pityrosporum ovale.
3—Keratolytic action, to remove excessive keratinaceous material.
4—Penetration of the epidermis inducing pilo-follicular cellular activity.
5—pH in 5.0—7.5 range.

To determine the effectiveness of anti-seborrhoeic agents, a special technique for testing these preparations on the scalps of the patients has been advanced. Repeated cultures are done before, during and after treatment to determine the bactericidal effect on the scalp. It is considered advisable to test the effectiveness of an anti-seborrhoeic formulation by observing its effect on the bacterial and fungal flora of the scalp.

Recently we described the bacteriological screening of potential anti-seborrhoeic agents against staphylococcus aureus and albus, pityrosporum ovale and microsporum lanosum.

The next step is to determine its action on the scalp both clinically and bacteriologically. The technique to be presented was developed by Botwinick and Lubowe, and

IRWIN I. LUBOWE, M.D., F.A.C.A.*†



Plastic helmet for cultural studies

*Assistant Clinical Professor of Dermatology, New York Medical College—Metropolitan Hospital Center.
†Laboratory studies conducted by the Research Testing Laboratory, New York City, under supervision of Isaiah Botwinick, Director.

Reprinted from the Proceedings of the Scientific Section of The Toilet Goods Assn., No. 28;18 (1957)

originally described in July, 1956, at the Paris meeting of the Society of Cosmetic Chemists.

A clinical history is taken and examination of the scalp is made by a dermatologist. The scalp is combed and the hair separated to determine excessive hair fall, and the presence of dandruff scales, papules, pustules, excoriations and folliculitis. An illuminated magnifying glass is also utilized to corroborate the findings. The clinician must carefully examine other cutaneous areas of the body to differentiate from psoriasis, lupus erythematosus, and other scalp diseases. Dermatological involvement of the eyebrows, face, ears and chest aid in confirmation of seborrhoeic dermatitis.

Five patients, diagnosed by us as—Seborrhea Capitis, with the associated signs of dandruff, scaling, itching and hair-fall, were utilized in this study. They were refractory to the usual Anti-Seborrhoeic remedies.

A plastic helmet was improvised as a covering for the scalp—a square inch opening was made at the occipital and temporal areas. A skin curette was used to scrape the debris and exfoliated skin. The opening of the curette was firmly packed.

Outline of Method

1—A special designed plastic helmet was placed on the subject's head. Three openings measuring 1 square inch each, had previously been made in the helmet, one in each of the temporal regions and one in the occipital area.

2—Using a suitable closed curette the area exposed by the openings in the helmet were scraped until the curette was filled. The length of time required to fill the curette was noted for each area.

3—The dandruff and skin scrapings removed with the curette were placed in 10 ml Sabouraud broth. The broth was vigorously agitated for 5 minutes to secure a homogeneous suspension of the dandruff and skin scrapings in the broth.

CHART I a.

First Series of Fungi Counts—Base Line—five subjects

Right Temporal Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	1,000	800	600	750	850
2	700	500	500	725	650
3	1,100	750	800	800	1,000
4	400	500	600	600	625
5	650	600	700	725	800
average	770	630	640	720	785

Left Tempoçal Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	450	700	450	550	575
2	350	600	240	400	500
3	1,100	1,150	675	875	900
4	600	300	400	500	550
5	450	500	600	450	525
average	590	650	470	555	610

Occipital Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	700	700	800	850	725
2	800	700	450	750	700
3	1,200	1,100	1,300	1,150	1,200
4	800	600	450	575	725
5	750	800	850	725	900
average	850	780	770	810	850

CHART I b.

First Series of Bacteria Counts—Base Line—five subjects

Right Temporal Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	5,000	4,000	6,000	5,700	5,800
2	3,900	2,500	2,500	3,800	3,200
3	6,000	4,800	5,500	5,300	5,100
4	2,000	2,500	3,000	2,900	3,300
5	3,900	3,100	3,700	3,500	3,600
average	4,160	3,380	4,140	4,240	4,200

Left Temporal Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	2,000	3,500	1,500	3,600	3,200
2	2,750	3,000	2,900	3,100	2,800
3	6,000	6,300	5,700	5,500	5,300
4	3,000	2,500	2,600	2,900	2,750
5	2,700	3,900	3,500	3,800	4,000
average	3,290	3,800	3,200	3,800	3,600

Occipital Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	3,500	5,500	4,000	5,100	5,800
2	7,000	6,500	6,200	7,300	6,900
3	9,000	10,000	9,800	10,500	10,600
4	10,000	9,000	8,000	10,300	9,200
5	3,400	4,000	4,600	3,700	4,500
average	6,580	7,000	6,500	7,400	7,400

THERAPEUTIC SCALP CLEANSER #456 (SARTHIONATE)*

CHART II a.

Fungi Counts after using Lotion—Second Series—five subjects

Right Temporal Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	600	300	100	70	75
2	570	380	400	200	150
3	820	450	100	90	100
4	410	390	320	250	160
5	600	510	390	280	140
average	520	406	260	178	125

Left Temporal Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	300	240	130	80	30
2	400	300	150	85	50
3	800	460	220	90	75
4	500	400	200	140	100
5	425	320	240	150	80
average	425	344	188	109	70

Occipital Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	690	220	180	100	60
2	640	200	170	150	100
3	800	500	450	300	170
4	600	350	200	180	100
5	730	600	310	190	95
average	690	370	260	180	105

*BRISTOL MYERS CO.

CHART IIb.

Bacteria Counts After Using Lotion—Second Series—five subjects.

Right Temporal Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	5,000	4,000	3,500	2,600	2,000
2	3,000	2,800	2,300	1,600	1,400
3	4,900	4,000	3,000	2,300	2,000
4	3,000	2,600	2,000	1,500	1,300
5	3,200	2,800	2,100	1,700	1,500
average	4,800	3,200	2,600	1,900	1,600

Left Temporal Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	2,800	2,600	2,300	1,800	1,400
2	2,600	2,400	2,000	1,500	1,200
3	5,000	4,000	3,000	2,600	2,300
4	2,400	2,100	1,700	1,300	1,100
5	3,500	3,200	2,500	1,900	1,600
average	3,300	2,900	2,300	1,800	1,500

Occipital Area

counts / subjects	immediate	3rd day	5th day	10th day	14th day
1	4,100	3,800	2,900	2,400	2,000
2	6,500	5,700	4,800	3,600	3,100
3	9,000	7,900	5,300	4,000	3,000
4	8,700	7,700	6,900	4,900	4,000
5	3,800	3,400	2,800	2,300	1,600
average	6,400	5,700	4,500	3,400	2,700

THERAPEUTIC SCALP CLEANSER #456 (SARTHIONATE)

CHART III

Per Cent Reduction of Fungi after using Lotion—five subjects

Right Temporal Area

immediate	3rd day	5th day	10th day	14th day
27%	43%	63%	75%	82%

Left Temporal Area

immediate	3rd day	5th day	10th day	14th day
26%	40%	68%	81%	88%

Occipital Area

immediate	3rd day	5th day	10th day	14th day
15%	54%	69%	77%	87%

Per Cent Reduction of Bacteria after using Lotion—five subjects

Right Temporal Area

immediate	3rd day	5th day	10th day	14th day
0%	20%	36%	52%	59%

Left Temporal Area

immediate	3rd day	5th day	10th day	14th day
8.7%	19%	35%	49%	57%

Occipital Area

immediate	3rd day	5th day	10th day	14th day
8%	18%	35%	51%	61%

4—1.0 ml, 0.5 ml, and 0.1 ml aliquots of the broth suspension were plated in nutrient agar for a bacteria count of the area. 1.0 ml, 0.5 ml, and 0.1 ml aliquots of the broth suspension were placed on the surface of Sabouraud dextrose agar to determine the fungi count.

Quebec bacteria colony counter

5—15 to 18 ml of nutrient agar cooled to 43°C were used for the bacteria count and 15 to 18 ml of Sabouraud dextrose agar were used for the fungi count. The plates were incubated at 37°C for 48 hours for the bacteria count and for 72 hours under 10% carbon dioxide for the fungi count.

6—Bacteria and fungi counts were made using an improved Quebec colony counter. Multiply counts by ten to secure total counts for 1 ml aliquot, by twenty for 0.5 ml aliquot, and by 100 for 0.1 ml aliquot.

Simultaneously, the patient is observed clinically to ascertain the relief from dandruff, itching and infection.

Summary

In this paper we have described a new laboratory method for the determination of the effectiveness of anti-seborrhoeic agents and formulations by direct application to the patient's scalp. The diminution in the number of bacteria and fungi, after use of test preparation, is relative to the degree of effectiveness.

This procedure is a modification of the hand washing technique for determining the antiseptic properties of soap, as suggested by Price, Reddish, and Cade.

The material evaluated in this report was originally designated as Therapeutic Scalp Cleanser #456. After completion of the study, we were informed that it contained Sarthionate, as an active ingredient.

There was a marked reduction of the resident bacteria and fungi, which was progressively noticed, following application of Sarthionate to the scalp of the five patients used in this new laboratory procedure for the evaluation of potential Anti-Seborrhoeic Chemicals and Formulations.

Sarthionate, bis-lauryl trimethyl ammonium polythionate, is very effective in reducing the bacterial and fungal colonies of previously mentioned organisms of the scalps of seborrhoeic patients. The improvement in clinical features is closely related to the decrease in the bacterial colonies.

REFERENCES

1—Lubowe, I. I.: "The Laboratory and Clinical Evaluation of Anti-Seborrhoeic Agents," delivered at International Society of Cosmetic Chemists, Paris, France—July 30, 1957.

2—Lubowe, I. I.: Management of Seborrhea Capitis and Associated Disorders—*Medical Times*, February, 1954.

3—G. F. Reddish: "Present Trends in Methods of Testing Antiseptics" *Annals of The New York Academy of Sciences*, 53, Article 1, August, 1950.

4—Arthur R. Cade: Simplified In Vivo Method for Determining Degerming Efficiency of Soaps—*Soap and Sanitary Chemicals*, 26, 35, (July 1950).

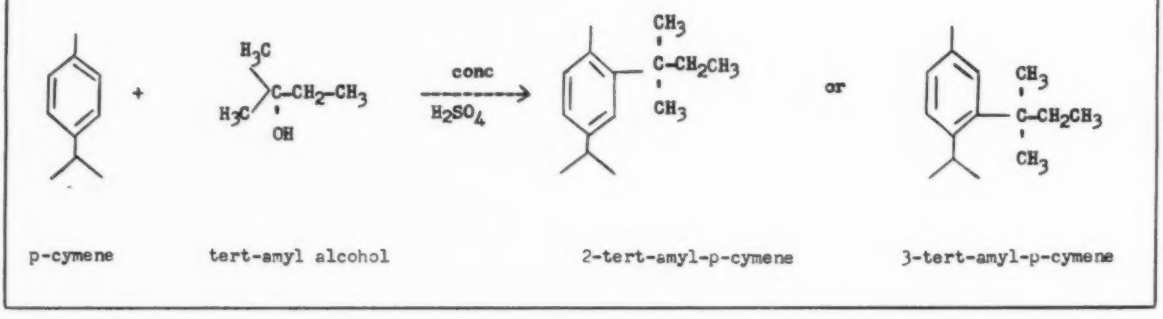
Dr. Weber and Dr. Spoelstra discussing the U. V. graphs used for the identifications of the various indans.

Phantolid, a new type musk synthetic which is not affected by light and alkali, was introduced to the perfume industry in the Spring of 1952. Since then several papers by members of the Polak's Frutal Works laboratories, concerning its organoleptic, physical and chemical properties, have been published. Spatz and Polak (1) in a review article in the Proceedings of the Scientific Section of the Toilet Goods Association in 1953 compared the odor of Phantolid with other musk synthetics such as Cyclopentadecanolid, Musk Ambrette, Musk Ketone, etc. However, no disclosure of the chemical structure of Phantolid was made until 1955 when Spoelstra, Weber and Polak (2) revealed that it belonged to a new class of musk synthetics, the acetylate polyalkylindans. Its structure was proven to be 6-acetoxy-1,1,2,3,3,5-hexamethylindan. This article, therefore, will review the chemistry as well as the odor characteristics and uses of these acetylated polyalkylindans.

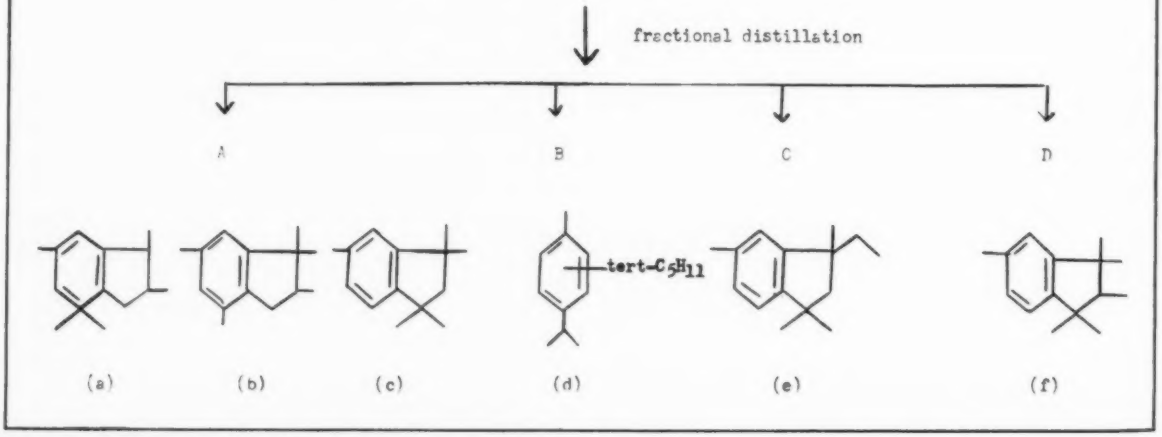
Chemistry and Use of

ALEX POST*

SCHEME I

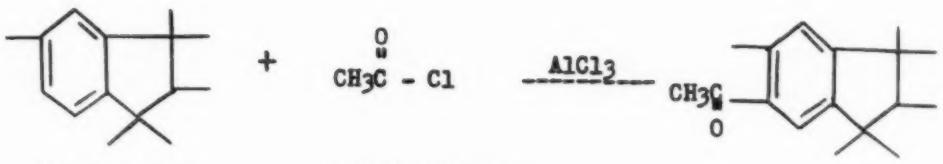


SCHEME II Reaction Mixture



* Analytical Laboratories, Polak's Frutal Works, Inc., Middletown, New York

SCHEME III



1,1,2,3,3,5-hexamethylindan (f)

acetyl chloride

"Phantolid"

6-acetoxy-1,1,2,3,3,5-hexamethylindan

# of Polyalkylindan Musk Odorants

Chemistry

The alkylation of aromatic rings in the presence of conc. H_2SO_4 has been used frequently to prepare alkyl aromatic compounds. Therefore, it was not unlikely to expect, based on previous reports (3), (4), that the alkylation of p-cymene with tert-amyl alcohol would yield either 2- or 3-tert-amyl-p-cymene (Scheme I).

However, as reported by Spoelstra, Weber and Polak (2), (6) and subsequently indicated by other workers (7), the expected products were not obtained but instead there was found a mixture of polyalkylindans and an alkyl aromatic hydrocarbon. Precise vacuum fractional distillation of this mixture indicated the presence of four fractions, three of which (Fraction A, C, D), based upon ultra-violet structure data and elemental analysis, could contain an indan structure while the fourth (Fraction B) appeared to be an alkyl hydrocarbon (Scheme II).

From the information available, Fraction A could be one of three possibilities (a, b or c), C and D one of two possibilities (e and f), while B was thought to be a small amount of either the 2- or 3-tert-amyl-p-cymene (d) (Scheme II). In order to rigorously identify each possibility, the compounds would have to be synthesized, both the unknown and known derivatized and, finally, an elemental analysis performed on each. This was done, and accordingly Fraction A was found to be 1,1,3,3,5-pentamethylindan (c); Fraction B remained unidentified; Fraction C was 1,1,3,5-tetramethyl-3-ethylindan (e); and Fraction D was 1,1,2,3,3,5-hexamethylindan (f).

During one phase of the identification, that is the preparation of 6-acetoxy derivative of compounds a, b, c, e and f, via the Friedel Crafts reaction (Scheme III), the solid derivatives with the exception of compound (a) had musk odors.

After an intensive odor evaluation the odor quality of the 6-acetoxy derivatives was established (Table I).

Based on these evaluations it was established that

TABLE I

6-Acetoxy Derivative of	Name	Odor Quality
Compound (a)	6-acetoxy-1,1,2,3,5-pentamethylindan	odorless
" (b)	6-acetoxy-1,2,3,3,5-pentamethylindan	weak musk odor similar to (e)
" (c)	6-acetoxy-1,1,3,3,5-pentamethylindan	musk and woody odor weaker than (b)
" (e)	6-acetoxy-1,1,3,5-tetramethyl-3-ethylindan	same type musk odor but weaker than (f)
" (f)	6-acetoxy-1,1,2,3,3,5-hexamethylindan	strongest and finest musk odor

Phantolid is the 6-acetoxy derivative of compound (f) or 6-acetoxy-1,1,2,3,3,5-hexamethylindan. Table II contains physical data of the more interesting 6-acetoxy derivatives.

Phantolid is a solid mixture of isomers having a melting point of 35-40°C. The liquified material can be supercooled for several days before solidification commences. The solubility properties of Phantolid are excellent (1). It is quite soluble in aqueous ethyl alcohol (10% soluble in 60% alcohol to 90% soluble in 90% alcohol), benzyl alcohol (73%), mineral oil (90%), carbitol (92%) and diethyl phthalate (82%). The solubility in perfume bases and essential oils can be as high as 50%.

One of the remarkable properties of Phantolid is its stability to heat, light, acids, alkalies, and the oxidizing and reducing conditions that may be encountered in perfumes, cosmetics and industrial products. In an accelerated light stability test of non-perfumed and perfumed soap flakes containing 1% Phantolid, no evidence of yellow color could be detected spectrophotometrically at 430-490 mu. This can be considered excellent evidence of its stability both to light and alkali.

Applications

Although the acetoxy polyalkylindan musks differ chemically from the previously mentioned macrocyclic and nitro musks, their odor properties are closely allied with the macrocyclic type. The fragrance of these acetylated polyalkylindans is characterized by a soft animal warmth devoid of chemical by-notes and heaviness. This important odor quality makes these new musk compounds an important adjunct for the perfumer. They can be used liberally in all types of perfume without disturbing the perfume's delicate character with heavy overtones.

Since Phantolid has been commercially available for the past five years, it has been possible to accumulate extensive application data, not only from our own laboratories, but also from leading firms in the cosmetic, toilet goods, soap and essential oil industries throughout the world. Five major and interrelated applications, which will be discussed below, were reported.

(1) Creation of a luxury effect

Phantolid was found to be of assistance in the creation of a luxury effect without upsetting the artistic balance of a fragrance. For instance, 1 to 3% (based on perfume oil weight) could be added to a fresh citrus cologne or a "Blue Grass" type lotion without altering the odor type. In perfumes and lotions, the dosage, again based on perfume oil weight, varied from 0.5% for very delicate fragrances to 50% for heavy oriental compositions. These additions were helpful in developing the "warmth" and "body" qualities usually associated with the most expensive luxury perfumes. Its use assisted in reducing the restrictive technical and cost-price limitations so often encountered previously.

(2) Blending

The use of blending agents for the purpose of rounding off a mixture of perfume raw materials is indispensible to the perfumer. Phantolid has been shown to be an effective blender, especially suited for delicate fragrance types like Muguet, Lilac, Rose, as well as the light modern aldehyde types. Some tendency to tone down top notes has been observed. This can be of advantage where top "lift" is desired, e.g. by addition of citrus notes *without* producing sharp effects.

(3) Liaison

A fragrance may smell exquisitely on a perfume test blotter yet be unattractive when applied to the skin. To correct this situation a "liaison" agent, usually a material of animal origin, is incorporated in the fragrance to provide the warm animal note necessary to "bridge" the gap between the fragrance and the skin. Some natural animal notes like castoreum, civet and labdanum tend to show through if used too freely. Phantolid did not show this disadvantage and could be used freely for maximum "liaison."

(4) "Fixation"

Due to its high boiling point and very low vapor pressure, Phantolid, when mixed with perfume raw materials, will assist in delaying the evaporation of the more volatile ingredients. Since its mild and discreet odor does not alter the basic fragrance of a perfume, it can be used to the extent of 5% to bring about a "fixation" effect.

(5) "Pre-softening of perfume alcohol"

Perfume grade alcohol has a slight harshness inherent in its manufacture and denaturation. This undesirable property is frequently covered by "pre-softening" the alcohol with recognized blender-fixatives, preferably those with natural sweetness. It was reported that 0.1% of Phantolid added as a "pre-softener" to the alcohol and the mixture permitted to mature for two weeks, is helpful in masking the "harsh" note.

TABLE II

6-Acetoxy Derivative of	M.P. °C	N_D^{20}	b.p. °C	M.P. °C (1) 2,4-DNPH	M.P. °C (3)
Compound (c)	61-62°	1.5228	117 (2 mm)	159.5-161.5 (2) 178-181	181-183
" (e)	31-32°	1,5285	117 (1 mm)	141-142.5°	168-170
" (f)	58-59°	1,5322	131 (2 mm)	162.5-164.5°	196-198

(1) 2,4-dinitrophenylhydrazone

(2) two modifications

(3) semicarbazone

The following Table III suggests specific recommendations for the use of Phantolid in various perfume type oils.

Conclusion

The chemistry and applications of the acetylated polyalkylindan type musk odorants has been reviewed. The unique properties of these compounds especially 6-acetoxy-1,1,2,3,3,5-hexamethylindan (Phantolid), has been discussed. The use of Phantolid in perfume oils should aid in reducing some of the problems confronting the perfumer.

Bibliography

(1) Spatz, S. M. and Polak, E. H., Proceedings of the Scientific Section, Toilet Goods Association, 19, 1953.

(2) Spoelstra, D. B., Weber, S. H. and Polak, E. H., Recueil des Travaux Chimiques des Pays-Bas, 74, 1179-1196 (1955).

(3) Barbier, H., Helv. Chim. Acta, 15, 595, (1932).

(4) Ipatieff, V. N., Pines, H., and Olberg, R. C., J. Am. Chem. Soc. 70, 2123 (1948).

(5) Dutch Patent 74,524 (March 17, 1954); German Patent 918,747; French Patent 1,054,092; Japanese Patent 218,069 (December 3, 1955); British Patent 732,111 (December 10, 1951); Swiss Patent 311,193; and United States Patent 2,752,404.

(6) Spoelstra, D. B., Weber, S. H. and Polak, E. H., Helv. Chim. Acta 39, 323 (1956).

(7) Grampoloff, von A. H., Helv. Chim. Acta, 38, 1263 (1955).

TABLE III

Perfume Type	Suggested Percentage of PHANTOLID to be added to Perfume Oil: For perfumes & colognes	For cosmetic creams & face powder	For Soap
Eau de cologne	ca 2%	ca 4%	ca 10%
Flower	5- 7%	5-20%	10-30%
Light, fantasy, e.g. aldehyde perfumes, light fougeres or chypres	7-10%	10-20%	10-50%
Heavy fantasy perfumes "Oriental" perfumes	12-25%	20-50%	20-50%

How Tinkerbell Toiletries Was Founded

A chance encounter with a gentleman in the perfume business in 1949 persuaded Michael Greenfield, president of Tinkerbell Toiletries, to give up the practice of law. Educated at New York's City College and the Harvard Law School, Mr. Greenfield had used his legal training to good advantage with the Federal Security Agency in Washington and the War Labor Board in New York.

Since he was not solemnly devoted to the law as a permanent career, Mr. Greenfield's curiosity was piqued when he was invited to become associated with the perfume company. After a short stay in the legal department there, he was appointed purchasing agent in 1949, a post he held for approximately three years.

During this period he decided the cosmetic field was unquestionably his cup of tea and began to activate plans to establish a business of his own. His financial resources were hardly impressive, but he had a strong feeling that toiletries for children provided an area that had been only slightly tapped.

1952 was the year Tinkerbell Toiletries was established by Mr. Greenfield. The infant company, captained by a zealous young man content to be an unsalaried president, had a Fifth Avenue address, with properties consisting of a lone desk.

Twelve months later, with enough progress made to prove that his *raison d'etre* for Tinkerbell Toiletries was correct, two important decisions brought further good fortune to the young firm.

Decision No. 1 centered around a move from the confined desk space to a Manhattan loft. Decision No. 2 brought Martin Greenfield into his brother's business. Martin, a former track star on the Cornell University team, with a degree in civil engineering, had accumulated business experience in a jobbing concern that handled a large array of merchandise from kitchen appliances to silver tea services.

The joint endeavors of the former attorney and the former engineer flourished so beautifully that an honest-to-goodness factory was purchased in 1954, and happily outgrown in two years. Today the home of Tinkerbell Toiletries is in a sunlit, modern factory located in Englewood, N. J., where the firm produces 40 different items that beguile youngsters in our own 48 states as well as in Canada, Central America and the islands of the Caribbean.

Michael Greenfield, whose youthfulness belies his chronological age (41), is the father of a boy and a girl, lives in Teaneck, N. J., and is a staunch believer in family life. In business parlance, he is the "outside" man, while Martin Greenfield is labeled the "inside" man.

Today, Tinkerbell Toiletries features an assortment of 40 different cosmetic items for little glamour girls, always beautifully packaged and attractively designed. In addition to being lovely-to-give and lovely-to-get gifts, Tinkerbell Toiletries give youngsters the valuable experience of early training in good grooming.

The advertising dollar is the dollar that is steadily worth more. The advertisers of America invested a record all time high of nearly eleven billion dollars in national and local advertising in 1957 and cashed in on sales.—*Samuel Himmell.*

THE MECHANISM OLFACTORY

R. W. MONCRIEFF

The Conference on Basic Odor Research Correlation held in New York City in March, 1953, by the New York Academy of Sciences in co-operation with The American Society of Heating and Ventilating Engineers was designed to bring together those people, academic and industrial, research and process, whose work was concerned with odor and to correlate their work so that an up-to-date assessment could be made of the state of the science of smell, so that gaps in the basic knowledge of the subject would be revealed, and future work could be directed to fill these gaps. The author attended the conference as the guest of the Academy, and has since carried out work towards filling one of the gaps. The work done has been concerned with the mechanism of the olfactory stimulus; much of it has been published in a series of papers; it is the aim in this paper to outline the considerations that initiated the work, to summarize the experimental methods and results and to discuss their significance.

The Smell Stimulus

It is a matter of everyday experience that odor is air-borne; we smell downwind and we cannot smell through any airtight barrier such as a glass bottle. There is general agreement that a substance must be volatile to be odorous; volatility is a prerequisite for odor and no non-volatile substance is odorous. The primary stimulus for olfaction is the presence of molecules of an odorant in the air which is inspired and thereby drawn over the olfactory membrane. What happens next, when the odorant molecules contact the olfactory receptors, is not yet generally agreed. The possibilities would seem to be:

(1) Simple contact of odorant molecules with receptors.

(2) A chemical reaction between the odorant and the receptors.

(3) Solution of the odorant in the tissues of the receptors.

(4) Adsorption of the odorant on the receptor surfaces.

Contact. Simple contact implies that the gas molecules of odorant hit the receptor surfaces and bounce off immediately; only pressure would thereby be exerted and the pressure would be exerted by the air molecules whether odorant was present in the air or not. It is *change* that is necessary for stimulus and simple contact of odorant molecules with the receptors would not provide change.

Chemical reaction. If a chemical reaction took place it would have to be one that would leave the receptors unconsumed, i.e. it would have to be reversible. There is, too, the difficulty of accounting for the removal of by-products of such a reaction; presumably they would be carried away in the bloodstream, but their removal would have to be extremely rapid because of the apparently instantaneous disappearance of smell when the odorant-stimulus is removed. A considerable objection to the view that a chemical reaction does take place is that many odorants are fully saturated and chemically unreactive and quite incapable of taking part in any addition reaction; in particular, some of the saturated aliphatic hydrocarbons have quite strong odors, but they are very unlikely to take part in any chemical reaction under the conditions of temperature and pressure that obtain in the body. Even if it is postulated (and there is no experimental evidence to support the postulate) that the olfactory cell contains enzymes capable of inducing a reaction between the odorant and some other material in the cell we are still left with the need for great rapidity of reaction, complete reversibility, extremely fast disposal of by-products and the fact that many substances which are chemically unreactive will engage in such reaction. These requirements constitute

OF THE STIMULUS

a very unfavourable specification for any known sort of chemical reaction.

Solution. The possibility that the olfactory stimulus consists simply of the act of solution of the odorants in the nasal fluids has received consideration. Backman (1917) suggested that both aqueous and lipoid solubility are necessary for smell, pointing out that the lowest members of the saturated fatty alcohols, namely methanol, ethanol, and propanol, are water-soluble but not fat-soluble and have only mild odors, whereas butanol and amyl alcohol are water-soluble and fat-soluble and have powerful odors; those higher members of the series such as cetyl alcohol which are fat-soluble but not water-soluble are inodorous. The argument holds in a homologous series such as this, but hardly beyond it; it affords no explanation of the strong smells of xylene and naphthalene, both of which are practically insoluble in water, nor indeed of acetone which has only a low fat-solubility but has a strong smell. Much later, McCord and Witheridge (1949) suggested rather speculatively that the odorant dissolves in the nasal equipment and that the bonding angles which unite the atoms in the odorant molecules are modified during solution and that it is this modification that provides the stimulus. The author (Moncrieff 1949) has discussed other aspects of the relations between odor and solubility. Parallels can be drawn between solubility properties and smell but so they can between many physical properties and smell but so they can between many physical properties and physiological activity of one sort or another and that is as far as it is safe to go. There is, however, no way of getting round the insolubility of many powerful odorants in aqueous liquids and this seems to rule out the possibility that the act of solution plays an essential part in olfactory stimulation.

Adsorption. The fourth possibility that it is adsorption of the odorant molecules on the olfactory membrane that stimulates olfaction does not seem to suffer from such serious disadvantages as those concerned with mere contact, or chemical reaction or solution. Adsorption is a rapid process in which equilibrium may be attained in a small fraction of a second, it is completely reversible. It is well-known that such adsorbents as charcoal and silica gel rapidly and in suitable circumstances almost completely adsorb odorants from the air; substances that smell have long been recognized as easy to adsorb and if it is necessary to remove a smell from air and to hold it for future reference, adsorption is usually the best method. Of all the processes commonly carried out in the laboratory, boiling, condensing, freezing, melting, subliming, crystallizing, oxidizing, reducing, polymerizing, depolymerizing, dissolving, distilling, calcining, electrifying, absorbing, adsorbing, and all the rest, the only one that has any recognized correlation with odor is adsorption. There are other characteristics of adsorption, too, that key in well with odor properties, but in order to appreciate them, it is essential to have an appreciation of the dynamic nature of adsorption.

Adsorption Mechanism

The student of osmics cannot confine his interests to the subject in which he usually works whether physics, chemistry, physiology, anatomy, histology, biology or psychology, but must be prepared to cross the boundaries where one subject impinges on another and to learn what he can of the several disciplines. Whilst all scientists are generally familiar with the concept of adsorption, it is unlikely that all will have a working knowledge of the mechanism of the process, and as some understanding of this mechanism is essential to appreciate the arguments shortly to be advanced to prove that adsorption is the real stimulus of smell, the liberty will be taken of inserting a short description of the adsorption process. The feature that it is essential to grasp is that adsorption is *dynamic* in character, and not static. This has been admirably expounded by de Boer (1953). Adsorption is not a process wherein a gas molecule collides with a solid surface and is caught by it and stays there indefinitely like a fly caught on a sticky paper; it is one in which the gas molecule collides with the solid, loiters there awhile and jumps off again, more like bees visiting flowers. One proof of this is that when adsorption does *not* occur, the molecule bounces immediately off the solid surface like a billiard ball off a cushion, with the angle of reflection equal to the angle of incidence, but when adsorption *does* occur the angle of reflection may be anything, just as if someone had caught the billiard ball when it hit the cushion, had held it momentarily and had then thrown it back or in any other direction. The vibrations of the atoms of the solid surface (adsorbent) provide this throwing energy. The attractive forces of these atoms first catch the gas molecule; then the atoms vibrating all the time at very high speeds impart enough energy to the adsorbed molecule to throw it off. This takes time, but the process goes on continuously; gas molecules collide with the solid surface, are held awhile by the vibrating atoms, may even pass from one to another of them, then wildly vibrating themselves are flung off the surface back into the gas. In any such system of an adsorbent surface and a gas capable of being adsorbed on it, there will soon be a *concentration* of gas molecules on the adsorbent surface; the time of stay of the molecule on the adsorbent will vary from one to another, but for any system there will be a definite mean value; it may be only 10^{-6} sec. but if there is any *stay* at all, the process of concentration will go on. Equilibrium conditions will rapidly obtain and there will be as many gas molecules touching down on the adsorbent each microsecond as there are being thrown off it.

The molecules in a gas travel fast, those of air at room temperature at about 450 meters/sec., rather faster than the speed of sound (330 meters/sec.); they are exceedingly numerous, about 2.5×10^{19} per cc. The number of such molecules that strike each cm^2 of a surface per sec. is about 3×10^{23}. The number of molecules that hit a given area depends on their molecular weight; for ethyl mercaptan, for example, it would be about $2 \times 10^{23}/cm^2$/sec., and for a concentration of 0.001 per cent. ethyl mercaptan in air, still about 2×10^{18} mercaptan molecules would hit each cm^2 per sec. For many organic molecules the length of stay on an adsorbent surface such as activated carbon is about 10^{-3} —10^{-6} sec If we suppose that for ethyl mercaptan the average time of stay on the olfactory receptor system is 10^{-4} sec., then when once equilibrium conditions have obtained there

will be $2 \times 10^5 \times 10^{-4}$ or 2×10^{14} adsorbed molecules per cm^2 of surface from air containing 0.001 per cent ethyl mercaptan. Although equilibrium is established, there is no rest; all the time that the air containing the 0.001 per cent mercaptan is in contact with the adsorbent surface there will be 2×10^{18} mercaptan molecules alighting on each cm^2/sec. and a similar number flying off, but throughout there will be 2×10^{14} lodged or adsorbed on the surface. They will not be the same individual molecules throughout, but constantly changing.

Because enormous numbers of the molecules hit the surface even in a microsecond, equilibrium will be established very rapidly, in a fraction of a second. Furthermore, when the odor source is removed so that the inspired air no longer contains odorant molecules, there will be none to replace those constantly flying off; consequently the adsorbent surface will in a small fraction of a second become bare of odorant molecules. There is, too, the necessity for energy to be imported to or withdrawn from the olfactory receptor for it to be stimulated, possibly only sufficient energy to trigger on enzyme mechanism, or possibly sufficient energy to stimulate the nerve directly; in any case some energy change is necessary and an adsorption mechanism would satisfactorily meet this requirement. Whenever a gas molecule is adsorbed on to a solid surface, energy is given up by that molecule to the surface and whenever (perhaps 10^{-4} sec. later) a gas molecule is thrown off the adsorbent surface back into the air, energy is taken from the adsorbent surface. There will, therefore, at each adsorption site on the surface, be recurrent gains and losses in energy; high and low potential states will alternate rapidly and the frequency with which they alternate will be determined by the time of adsorption, i.e. by the average length of stay of the odorant molecule on the adsorbent surface.

It can be seen, then, that an adsorption mechanism of smell will account very nicely for (1) the apparently instantaneous perception of smell in the presence of an odorant, (2) its equally rapid disappearance, (3) a rapid alternation of potential in the receptor system, (4) the apparent absence of by-products of the olfactory process: adsorption is a clean process and followed by desorption, i.e. the loss of the adsorbed molecules, no residues are left behind. These considerations led to an investigation directed to find if adsorption could be experimentally identified as a part of the smell stimulus.

EXPERIMENTAL INVESTIGATION

Behaviour of Odorants towards Inorganic Adsorbents

If adsorption were the real stimulus for olfaction, it would seem that those substances that smell much the same would be adsorbed fairly similarly on the olfactory epithelium and it might reasonably be expected that such substances would behave somewhat similarly towards inorganic adsorbents. It is obviously easier to use these in experimental work as they are readily available in any quantity that may be required. The purpose of the first experiments made was to see if, in fact, substances that had diverse smells behaved quite differently towards inorganic adsorbents, whereas those that had similar smells behaved fairly similarly towards the inorganic adsorbents. Some criterion was needed by which to measure the behaviour of each odorant to each adsorbent, and the quantity that was selected for this purpose was the 'critical time of contact'; that was the time of contact necessary for the adsorbent in large excess, just to deodorize air containing the odorant.

The apparatus used was that shown in Fig. 1. Air was blown at a known speed with the range of 8cc — 50

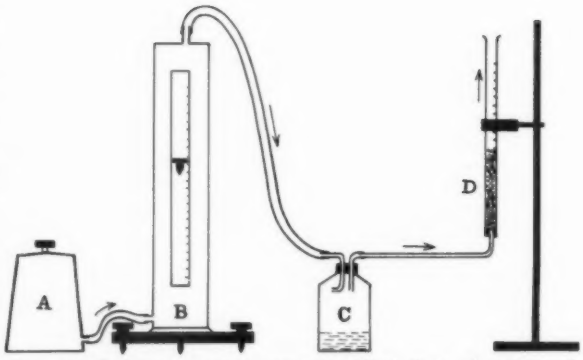


Figure 1—Equipment used to compare critical times of contact of odorant-adsorbent pairs.

cc/sec. by an electric blower A through a flowmeter B over 15 ml. of the odorant in a 6 oz. bottle C, and then through a column of adsorbent D; the nose was applied to the top of the adsorbent tube D and the blower started at its lowest speed and gradually increased in speed until the adorant could just be unmistakably recognized at the top of tube D. Each experiment was completed in 20-30 sec. so that there was no considerable pick-up of odorant material by the adsorbent and so that the adsorption properties of the adsorbent material were hereby not seriously modified during the course of the experiment. The height of the adsorbent in the column which had an internal cross-section of 0.5 cm^2 was suitably adjusted after a few pilot trials, so that the odor did not break through the adsorbent at the lowest speed of the blower but that it did so before the highest speed of the blower was reached. Each primary observation was of the blower speed (cc/sec.) at which the odor was recognized and of the height of adsorbent in the column D. If a recognizable smell appeared at a blower speed of x cc/sec. through an adsorbent column of height n cm. in the tube then the critical time of contact of the air which had been odorized in bottle C with the adsorbent in D was $n/2x$ sec. For each odorant material this critical time of contact was determined with various heights of adsorbent column, precautions being taken as described elsewhere (Moncrieff, 1954) to secure objectivity of observation.

There was some scatter of the results but, for the most part, they were for any one odorant-adsorbent pair within plus or minus 20 per cent of the mean. The observations described in the paper just referred to were made by the author; since then opportunity has been taken for similar observations to be made by five other observers and it was found that they varied a good deal in the agreement of their observations; one observer, long practised in smelling, gave results which, when converted into critical times of contact, were within plus or minus 5 per cent of the mean; two others gave results with about the same degree of scatter as the author and the other two could not obtain reasonably consistent results. Complete concentration is necessary and the observer simply has to say 'now' the moment he recognizes the odor; in the later trials the observer sat with eyes closed and note at the top of the adsorbent tube whilst another person operated the blower.

Five adsorbents were used; they were:

(1) active carbon (Sutcliffe Speakman & Co. Ltd., Leigh, England), Grade 208C, 6-10 mesh;
(2) silica gel (Silica Gel Ltd., London), 6-8 mesh;
(3) activated alumina (Peter Spence & Sons Ltd., Widnes, England), Type A, 4-8 mesh;
(4) activated fuller's earth (Attapulgus Minerals & Chemicals Corp., Philadelphia), Grade A, 6-8

mesh;

(5) vegetable fat mounted on three times its own weight of 8-16 mesh alumina.

Some of the results that were obtained with eight of the odorants are shown in Table 1.

TABLE 1

Critical Times of Contact of some Odorant-Adsorbent Pairs

Odorant	Type of Odor	Critical time of contact (sec.) with				
		Active carbon	Silica gel	Activated alumina	Activated fuller's earth	Vegetable fat
n-Butanol	spirituous bitter	0.08	0.09	0.22	0.06	1
Allyl caproate	pineapple	0.13	0.11	0.30	0.17	0.60
Ethyl acetate	fruity	0.14	0.11	0.28	0.26	1
Carbon disulphide	spirituous, nauseous	0.28	0.51	1	1	1
Pyridine	rank, tobacco	0.13	0.13	0.49	0.50	0.79
Acetone	characteristic	0.24	0.17	0.59	0.87	1
Oil of lemongrass	lemon-like aromatic	0.21	0.13	0.27	0.25	0.45
Onions	onions	0.06	0.15	0.73	0.99	1

It can be seen that all of the odorants, which all have different smells have different critical times of contact. The two odorants that have the most similar sets of critical times of contact are allyl caproate and ethyl acetate which both have fruity type odors, although they are very dissimilar. Lemongrass which also has a fruity note was fairly similar to these two on four of the five adsorbents. Carbon disulphide which has a unique smell has also a quite unique set of critical times of contact.

The similarity of the contact times of allyl caproate and ethyl acetate might have been due to their similar smell or it might possibly have been simply due to the fact that both were straight chain esters. Accordingly two substances, α-ionone and methyl octine carboxylate with violet smells but belonging to different chemical classes were examined; they gave the results shown in Table 2.

TABLE 2

Adsorption times for two substances with violet odors

Odorant	Chemical Class	Critical time of contact (sec.) with				
		Active carbon	Silica gel	Activated alumina	Activated fuller's earth	Vegetable fat
Methyl octine carboxylate	Acetylenic straight chain ester	0.15	0.11	0.20	0.13	0.47
α-Ionone	Ethylenic unsaturated cyclic ester	0.09	0.08	0.15	0.12	0.70

There is a good deal of correspondence between the adsorption characteristics of the violet smelling compounds and this, taken in conjunction with the similarity drawn by other pairs of odorants with similar smells, showed that although substances that have different odors behave differently towards adsorbents those substances which have odors of the same general type, e.g. fruity or like violets, behave not very differently amongst themselves to the adsorbents.

Sorption by the Olfactory Membrane

So far the position was that there was a well recognized, if loose, connection between odor and adsorption, that the dynamic character of adsorption would, if adsorption were in fact the olfactory stimulus, account very nicely for some of the most noticeable, and hitherto the most difficult to explain, or the properties of odor, and also that similarity of smell seemed to be accompanied by similarity of behaviour towards inorganic adsorbents. There was a good deal of interest evidence that adsorption and olfactory stimulation were very closely related, but there was not direct evidence that adsorption did take place in the olfactory receptor region. In order to prove, or disprove, that it did, two series of experiments were made (Moncrieff 1955): in the first, portions of the olfactory epithelium were removed from recently killed animals and their powers of adsorption were examined; in the second, odorized air was passed through the nasal passages and thereby over the olfactory epithelium of a recently killed animal and the issuing air was examined for loss of odor that it might have sustained in its passage through the head.

Deodorization of small fixed volumes of air. Air that had been odorized by blowing it over either benzaldehyde (almonds smell) or ethyl acetate (fruity smell) or some such odorant was collected in two similar beakers with cover glasses; into one of them was introduced a small piece about 1 cm^2 of pigmented turbinate cut from a recently killed sheep and the rate of disappearance of odor in the two beakers was compared by repeatedly removing the cover glasses and smelling until odor could no longer be detected. It was found that the pigmented turbinate deodorized the air very quickly, more quickly in fact than did some activated carbon. When tissue cut from other portions of the head of the sheep, e.g. the tongue and the anterior unpigmented turbinate, was tried, such tissue also showed considerable powers of sorption in its capacity to deodorize air but it was not nearly so rapid in its action as the pigmented turbinate—the part of the nasal epithelium that is innervated by the olfactory nerve. In other experiments two similar jars were filled with freshly cut grass which had a sweet vernal smell and into one of them was introduced part of the posterior turbinate system carrying the olfactory epithelium of a rabbit; after 0.5 min. it was difficult to smell the grass in this bottle and after 2 min. it was quite odorless, whereas the control bottle not containing turbinate, but only grass, still had a grassy smell on the following day. All freshly cut tissue whether from the posterior turbinate system, the anterior turbinates or even the tongue, showed considerable sorptive powers, doubtless because of its exceedingly fine structure, but that cut from that part of the turbinates which is pigmented and known to carry the olfactory receptor system was outstanding in its effectiveness. It showed unambiguously that the olfactory receptor region possessed powerful properties of adsorption.

Flow of air through whole head. The head of a newly-killed sheep was sealed by inserting corks into the cut gullet and windpipe and pouring wax over them and by pouring wax over the mouth. Two glass tubes were sealed into the two nostrils and the apparatus shown in Fig. 2 was set up. A is a variable speed air-blower, B is a Rotameter air flow-meter, C is the 6 oz. odorant bottle containing 15 ml. of odorant, D the head of the sheep, and E the point of observation to which the observer applied his nose. When air that was strongly odorized with benzaldehyde was passed through the head at a flow rate of 10 cc/sec. a time of 40 sec. elapsed be-

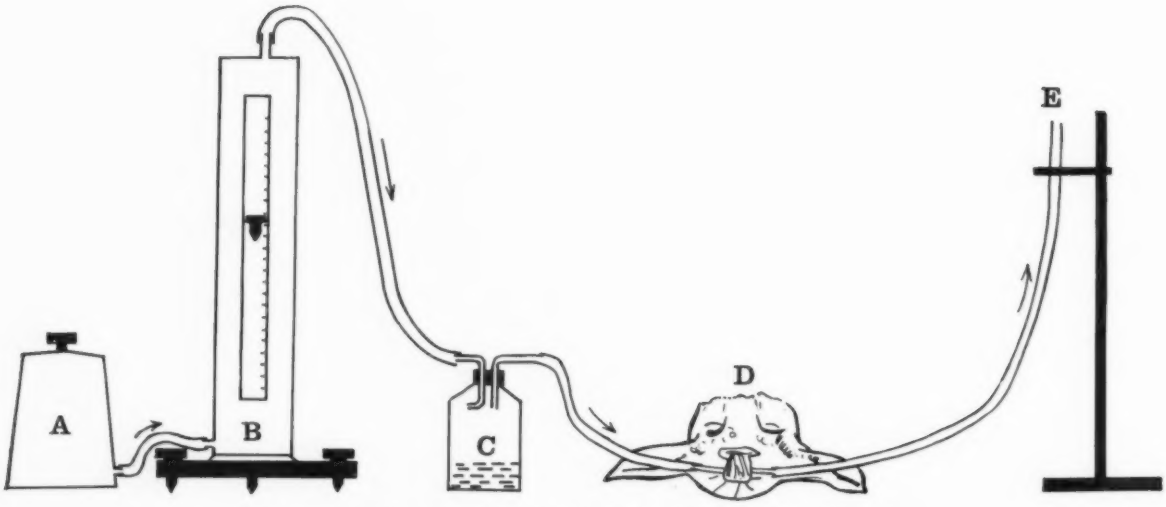


Figure 2—Apparatus used to blow odorized air through the inverted head of a sheep.

fore the issuing air at point E smelled of benzaldehyde; thereafter the smell persisted until the blower was stopped.

The head was then flushed with clean air by removing the odorant bottle C from the train; then another run was made with another odorant and so on.

It was found that for each odorant there was a fairly constant time interval before the odor appeared in the issuing air at the point of observation. Some of the results are shown in Table 3.

TABLE 3

Times taken for odorized air to pass at 10 cc/sec. through the nasal passages of a sheep's head.

Odorant	Type of Smell	Time taken (sec.) for smell to be recognized at outlet tube
Benzaldehyde	Almonds	35 - 50
Methyl octine carboxylate	Violets	10 - 16
Oil of Lemongrass	Lemon-like, aromatic	6 - 11
Onions	Onions	5 - 6
Phenyl acetylene	Coal gas	4 - 5
Amyl acetate	Pear drops	5 - 7
Camphor	Characteristic	50 - 60
n-Butanol	Spirituous, bitter	12 - 17
Pyridine	Rank	10 - 12
Fresh Grass	Vernal, sweet	60

At first it had been expected that the properties of the head would change rapidly after death, and two of the earliest preparations were made as quickly as possible, so that tests were made within about 30 min. of the death of the animal. It was surprising to find that the sorptive properties of the head, kept in a cool room at 40-50° were unchanged after 24 hr. although reproducibility began to be impaired at 30-36 hr. and in fact all measurements recorded were made within 26 hr. of death. The physical nature of the process of deodorization of air in the nose was plainly indicated by the way in which the same head could be used repeatedly with different odorants, with intermediate flushings out with clean air, and apparently with properties that were unchanged over a long series of experiments; so far as concerned its deodorizing properties, the head behaved more like a physical instrument that a physiological specimen, doubtless because the requirement made of it was one that was simply physical—that of adsorbing odorants.

There was, too, evidence that the sorptive process was, at least sometimes, reversible. For example, when air odorized with lemongrass was passed through the head the emergent air was odorous after 9 sec. and was strongly odorous after 11 sec., at which point the blower was stopped; then fresh air was blown through and the smell of lemongrass was unmistakable in the emergent air for 2 sec. When phenyl acetylene was used as the odorant, the smell appeared in 4-5 sec.; the blower was stopped and fresh air blown through, but the odor of phenyl acetylene was perceptible in the emergent air for as long as 40 sec. On one occasion amyl acetate had been used as the odorant, the blower stopped and the apparatus left overnight; the next morning fresh air was blown through the flush out the head and the odor of amyl acetate emerged strongly. Such reversibility of behaviour is typical of an adsorption process.

Furthermore, there was evidence of the displacement of one odorant by another. Air odorized with methyl octine carboxylate had been passed through the head to the point of recognition; thereafter fresh air had been passed for 3-4 min. to flush out the head thoroughly and after the first few sec. the emergent air was quite odorless; next, air odorized with ammonia (15% NH_3 in water in bottle C) was passed through the head; it was 40 sec. before the smell of ammonia was recognizable but in that interval the smell of methyl octine carboxylate was clearly recognized in the emergent air. Preferential behaviour of this sort is again typical of the adsorption process. There seems to be no doubt that the odorant molecules are at first removed from the air as it passes over the nasal surfaces and mainly by the pigmented olfactory epithelium and there are indications such as slowness of decay of powers of concentration, rapidity and completeness of action, reversibility and exhibition of preferences, which point to the removal or concentration process being nothing more nor less than one of physical adsorption. The rapidity of the concentration process is just what we might expect to find associated with the sense of smell with its extreme sensitiveness to the most tenuous of vapours and with its apparent instantaneity of response. Unless there were some selective process such as adsorption which could

concentrate the odorant molecules, it is very difficult to imagine how such very great dilutions in air of mercaptans and musks can stimulate smell as they do.

Quality Discrimination by Selective Adsorption

The seemingly countless smells with which our olfactory apparatus can cope and its competence to deal with them whether natural like those of flowers, herbs and foods, or man-made like those of the thousands of synthetic chemicals which have strong and characteristic smells that are not found elsewhere, demand some explanation of how such fine discrimination can be effected by such a simple olfactory stimulus as that of adsorption.

A method for assessing the likeness of two smells, A and B, has been described by the author (Moncrieff, 1956); it depends on a determination of the adaptation that they exert on themselves and on each other. Experimentally, determinations are made of four threshold concentrations for each pair of odorants, A and B; these are:

- C_{AA}; the lowest concentration of A is an odorless diluent that can be smelled after having smelt undiluted A with the previous inspiration. This is self-adaptation of A.
- C_{BB}; the lowest concentration of B in an odorless diluent that can be smelled after having smelt undiluted B with the previous inspiration. This is self-adaptation of B.
- C_{BA}; the lowest concentration of A in an odorless diluent that can be smelled after having smelt undiluted B with the previous inspiration. This is cross-adaptation.
- C_{AB}; the lowest concentration of B in an odorless diluent that can be smelled after having smelt undiluted A with the previous inspiration. This also is cross-adaptation.

Then if the coefficient of likeness of A and B is L, we have:

$$L = \left(\frac{C_{BA} \cdot C_{AB}}{C_{AA} \cdot C_{BB}} \right)^{1/2}$$

Two substances with exactly similar smells would have a coefficient of likeness of unity. The highest such coefficient observed amongst the small number of odorants tested is 0.89 for amyl and butyl acetates which have smells so similar that they are difficult to distinguish one from the other. The two ionones, α and β, had a likeness coefficient of 0.45 and benzaldehyde and nitrobenezene one of 0.40; those pairs of smells investigated that were not noticeably alike had coefficient of likeness values between 0.04 and 0.20.

One of the most interesting features of this investigation was that likeness of smell of two substances was assessed in three ways:

(1) by direct smelling; in the 21 pairs of odorants examined, six pairs were deliberately included as having very similar smells; they were:
   (a) *n*-butanol and *sec*-butanol
   (b) *n*-propanol and *iso*propanol
   (c) Cellosolve (monoethyl ether of ethylene glycol) and benzylamine
   (d) amyl and butyl acetates
   (e) benzaldehyde and nitrobenezene
   (f) α-ionone and β-ionone

(2) by determination of threshold concentrations after self-adaptation and after cross-adaptation and calculation therefrom of coefficients of likeness. Those pairs with the five highest coefficients of likeness all came from the six pairs picked out in (1) by direct smelling. The sixth pair, *n*-butanol and *sec*-butanol had an unexpectedly low likeness value of 0.09.

(3) by determination of the times of adsorption (as described earlier in this paper) of each odorant on five adsorbents. It was found that of the six similar pairs picked out organoleptically (1), four had very similar times of adsorption. The fifth pair, Cellosolve and benzylamine, had fairly similar although not quite so similar adsorption characteristics, and the sixth pair, *n*-butanol and *sec*-butanol, had dissimilar characteristics, just as they had had a low coefficient of likeness determined by the adaptation method.

The two different methods, adaptation and adsorption, both picked out from 21 pairs of odorants the same five pairs as being the most similar. These five came from the six that had been picked out organoleptically as smelling similarily. The good correspondence of the three methods, (1) direct smelling, (2) adaptation, (3) adsorption, in picking out the pairs of smells that are alike not only suggests that methods (2) and (3) of determining likeness are both sound, but also supplies confirmatory evidence that adsorption is the real olfactory stimulus and that *selectivity* of adsorption is the basis of quality discrimination of smells.

Limits of Odor Intensity and Adsorption Stimulus

If adsorption of odorant molecules on the olfactory epithelium is the olfactory stimulus, it is a corollary that there will probably be limits to the intensity that can be experienced of a least some odors. The process as we picture it is of the inspired air carrying odorant molecules passing over a sheet of receptors, probably more than 10^5 of them in a single person, and of both air and odorant molecules bombarding the sheet as they pass over it; the air molecules bounce off straight away but the odorant molecules are held awhile and within a fraction of a second equilibrium will obtain, and thereafter just as many odorant molecules will be flung off the adsorption sites as are alighting thereon in a given time. If the odorant is very dilute in the air, the total number of occupied sites when equilibrium is obtained will be relatively small, and if the concentration of the odorant in the air is increased then a new set of equilibrium conditions will rapidly be established and this time there will be a larger number of occupied sites. If the concentration of odorant molecules in the air is progressively increased, the number of adsorption sites filled under equilibrium conditions will rise progressively, too, and a state may be reached at which all the sites on the sheet of receptors that will adsorb that particular odorant are occupied. Then when that state of saturation is reached, further increase in the concentration of odorant molecules in the air will not affect the number adsorbed, nor will it affect the intensity of the olfactory stimulus. If then it is found experimentally that there is a limiting intensity of odor and that beyond that limit, increase in concentration does not increase the intensity of odor, we shall understand it readily as a manifestation of the adsorptive nature of the olfactory stimulus.

Experimentally the author (Moncrieff, 1957) whilst working on olfactory adaptation found a correspondence between intensity of odor of a substance and the degree of enhancement of its threshold concentration caused by one just prior inspiration of the undiluted substance. When the threshold concentration of an odorant (a) after having just smelt the undiluted odorant, is C_1 and (b) after having just 'smelt' an inodorous diluent is C_2 then the intensity, I, of the odorant is

given by the expression

$$I = \frac{C_1}{C_2}$$

Some of the intensity values that have been determined are as shown in Table 4.

TABLE 4

Odor Intensity of Some Odorants

Odorant (all undiluted except ethyl mercaptan)	Type of odor	Threshold concn. (per cent.) after smelling undiluted odorant C1	Threshold concn. (per cent.) after smelling inodorous diluent C2	Intensity of odor C1/C2
Ethyl mercaptan (0.5 per cent. solution)	Foul	0.0028	0.0000002	14000
Allyl caproate	Pineapple	0.1	0.00002	5000
Pyridine	Rank, gassy	0.07	0.00005	1400
Clove oil	Cloves	0.5	0.003	170
Acetone	Characteristic	5.0	0.03	170
n-Butyric acid	Sour, bitter	0.1	0.001	100
sec-Butanol	Fusel oil	0.2	0.005	40
isoPropanol	Spirituous, earthy, thyme	2.0	0.07	28
Methanol	Spirituous	2.0	0.2	10

It can be seen that this method of assessing the intensity of an odor (and it requires no more than the determination of two threshold values) gives results well in accord with organoleptic appraisal. It was not physically possible to take a deliberate smell of undiluted ethyl mercaptan and 0.5% was the highest concentration that could be used; even this is intolerably strong and just about at the observer's limit of endurance.

When the method was extended to the determination of the intensities of a range of concentrations of one substance, e.g. acetone, results shown in Table 5 were amongst those obtained.

TABLE 5

Variation of odor intensity of aqueous acetone solutions with concentration

Concn. of adapting soln. of acetone (per cent.)	Threshold concn. (per cent.) of acetone after one prior inspiration of adapting soln. C1	Threshold concn. (per cent.) of acetone after 'adaptation' with water C2	Intensity of acetone solution used for adaptation C1/C2
100	5	0.03	167
80	6	0.03	200
75	5	0.03	167
62	5	0.03	167
50	5	0.03	167
40	4	0.03	133
25	3	0.03	100
10	1.5	0.03	50
5	1.0	0.03	33
3	0.7	0.03	23
1.5	0.5	0.03	17
1.0	0.4	0.03	13
0.5	0.3	0.03	10
0.2	0.14	0.03	5

It can be seen from Table 5 that the intensity of odor of acetone solutions rises steadily with the concentration of acetone until a concentration of 50 per cent is reached and that thereafter the intensity is fairly steady.

When a similar set of experiments is made with *iso*propanol, the results are as shown in Table 6.

TABLE 6

Variation of odor intensity of aqueous isopropanol solutions with concentration

Concn. of adapting soln. of isopropanol (per cent.)	Threshold concn. (per cent.) of isopropanol after one prior inspiration of adapting soln. C1	Threshold concn. (per cent.) of isopropanol after 'adaptation' with water C2	Intensity of isopropanol solution used for adaptation C1/C2
100	2.0	0.07	29
75	2.0	0.07	29
50	2.3	0.07	33
30	2.3	0.07	33
25	2.0	0.07	29
20	1.8	0.07	26
15	1.7	0.07	24
10	1.2	0.07	17
6	0.8	0.07	11
3	0.5	0.07	7
1	0.3	0.07	4

Almost exactly the same thing happens with *iso*propanol as with acetone; intensity rises steadily with concentration until a concentration of 25-30 per cent is reached and thereafter the intensity is fairly steady however much the concentration is increased. The inference to be drawn is clear, the receptors are saturated with the odor stimulus that is given by smelling 50 per cent acetone or 30 per cent *iso*propanol directly from a wideneck bottle; this set of conditions provides sufficient odorant molecules to complete an adsorption layer on those parts of the receptor surfaces that will adsorb acetone or *iso*propanol so that a further increase in concentration of odorant molecules in the inspired air causes no further change. It must be added that if the solution were smelt from a greater distance than the 50 per cent acetone would not provide a saturating (towards the receptors) concentration of odorant molecules in the air and a 70 per cent solution of acetone would be perceived as stronger than a 50 per cent. But the significant fact is that the inspired air can have a concentration of odorant molecules sufficient to stimulate the appropriate receptors to their maximum so that an increase in concentration beyond that point produces no increase in odor intensity. This behaviour is exactly what might be expected if the olfactory stimulus consisted of adsorption of the odorant molecules on the olfactory epithelium. Whether a monomolecular or multimolecular adsorption layer is formed is not known; quantitative work has been attempted but the results are so far inconclusive.

Evidence that Adsorption is Responsible for Smell

The evidence that the olfactory stimulus is a process of adsorption may be summarized as follows:

1. The presence of odorant molecules in the inspired air is necessary for smell. There are grave difficulties to be confronted by any hypothesis that

the process of stimulation is one of simple contact, of chemical reaction or of solution. By an agreement or exclusion it seems likely that adsorption may be the effective process.

2. Adsorption is a process of *concentration* and in view of the very small quantities of many odorants that can be smelled, it would seem that some process of concentration must be involved to bring about the stimulation of the olfactory system.
3. Adsorbents such as charcoal and silica gel will rapidly and in suitable circumstances almost completely adsorb odorants from air and thereby deodorize it. Substances that smell have long been recognized as easy to adsorb.
4. Substances with similar smells behave similarly amongst themselves to adsorbents such as charcoal, silica gel, alumina and fuller's earth, but differently from other substances with diverse smells.
5. A dynamic process of adsorption accounts well for the apparently instantaneous perception of a smell and for its equally rapid disappearance when the odorant is removed.
6. Energy to stimulate the olfactory nerve must come from somewhere and adsorption is always an exothermic process. The dynamic nature of adsorption would result in rapid changes in potential of the adsorbing site.
7. Portions of olfactory epithelium removed from a recently killed animal will rapidly deodorize air just as a common adsorbent such as carbon will. The olfactory epithelium is much more effective in this respect than parts cut from the anterior turbinates.
8. When odorized air is passed through the nasal orifices of a recently killed animal, the air that emerges is odorless, indicating that the odorant has been removed from it. The time taken for the emergent air to become odorous is often quite long, of the order of 5-60 sec.; the time is reasonably constant for any one substance but differs from one substance to another.
9. There is evidence of reversibility in the process of removal of the odorant by the nasal passages; adsorption is a reversible process.
10. There is evidence of one odorant displacing another which has already been adsorbed by the nasal passages.
11. Likeness of odors determined by (a) direct smelling, (b) adaptation measurements, (c) adsorption measurements give concordant results, indicating that smell depends on adsorption.
12. A limiting odor intensity has been found for two odorants investigated in detail, and it is thought that this limit corresponds to the completion of an adsorption layer in the appropriate receptor system.
13. There is evidence that the olfactory stimulus is purely physical, for example Adrian (1950) has shown that in an anaesthetized rabbit the olfactory stimuli give persistent discharges in the bulb without adaptation for as long as an hour. The behaviour of the head of a newly-killed animal which did not change significantly up to 30 hr. after death in its property of adsorbing odorants is similarly characteristic of a physical process.
14. Evidence has, too, come from depth-encephalographic studies of olfactory stimulation (Sem-Jacobsen *et al*, 1956) that the electrical response in the bulb of a conscious human to an odor can persist for so long that the test has to be terminated. It is another indication that the stimulus is untiring so long as odorant molecules are present. It does seem that in the peripheral olfactory processes, the olfactory stimulus is an extremely simple physical process, although as has been abundantly shown by the neurophysiologists, the central pathways which modify and carry the initial signals to the appropriate region of the cortex are exceedingly complex.

REFERENCES

Adrian, E. D. (1950). The electrical activity of the mammalian olfactory bulb. *Electroenceph.clin.Neurophysiol.*, 2, 377-388.
Backman, E. L. (1917). Note sure la puissance des odeurs et leur solubilité dans l'eau et dans l'huile. *J.Physiol.Path.gen.* 17, 1-4.
De Boer, J. H. (1953). *The Dynamical Character of Adsorption*. Clarendon Press: Oxford.
McCord, C. P. & Witheridge, W. N. (1949). *Odors: Physiology and Control*, pp. 22-23. McGraw-Hill, New York.
Clarendon Press: Oxford.
Moncrieff, R. W. (1949). *The Chemistry of Perfumery Materials*. pp. 248-249. United Trade Press Ltd., London.
Moncrieff, R. W. (1954). The characterization of odours. *J. Physio.*, 125, 453-465.
Moncrieff, R. W. (1955). The sorptive properties of tthe olfactory membrane. *J.Physiol.*, 130, 543-558.
Moncrieff, R. W. (1956). Olfactory adaptation and odour likeness. *J.Physiol.*, 133, 301-316.
Moncrieff, R. W. (1957). Olfactory adaptation and odor intensity. *Amer.J.Psychol.* in the press.
Sem-Jacobsen, C. W., Petersen, M. C., Dodge, H. W., Jacks, Q. D., Lazarte, J. A., and Holman, C. B. (1956). Electrical activity of the olfactory bulb in man. *Amer.J.med.Sci.*, 232, 243-251.

Work, described was carried out with funds provided by Airkem, Inc, New York, N.Y.

Effect of Competition

Competition has its compensations. When Gleem tooth paste came out with a big, conical cap that could not go down the drain other manufacturers followed suit and John Q. Public benefitted. Ban, the roll on deodorant of Bristol-Myers Co. came up with a marble applicator. Competition turned handsprings to match Ban's convenience, even with another ball for getting the deodorant under arms. For improvements that are not patented or copyrighted the imitative instinct of human beings helps spread new ideas faster than if they were limited to the originator. If they are real improvements, we all benefit.—*Sales Management.*

Ability to comprehend and communicate ideas, the ability to see a job as a whole and knowledge of people are paramount qualities in leadership.—*William Feather.*

"I want something for my horse."

SAFROLE

A critical bibliographical review of available literature on the physiological effects of safrole

W. PHILIP LEIDY*

The January issue of *American Perfumer and Aromatics* (pp. 57-58) contains an article by M. B. Jacobs on the toxicity of safrole. In this article—a survey of the literature on the subject—Mr. Jacobs has tried to be fair and objective; but the general tone of his report is unfavorable, and helps to convey an idea that there is a respectable mass of experimental data confirming the toxicity of safrole to humans. More important, Mr. Jacobs' article may give the reader the impression that it is actually possible, from the sources cited, to estimate what the precise dosage of safrole *lethal* to humans may be. Neither of these is, in fact, the case, as an examination of Mr. Jacobs' sources (and of certain others) will prove; his article, therefore, must be read with serious reservations.

In the first place it needs to be emphasized that no clinical tests with sassafras oil or safrole seem ever to have been carried out on human subjects. Indeed, the total number of cases of human poisoning reported in Mr. Jacobs' sources comes to only seven—with no fatalities. To this the present writer is able to add two, for a total of nine cases, over a period roughly 1884-1957. (However, this does not represent an exhaustive survey of the literature.) This means that any discussion of the physiological fate of safrole—such as that of A. Heffter (see below)—deals with its fate in animals, and specifically smaller animals, and not in humans. The somewhat ambiguous way in which Mr. Jacobs and others have reported the literature on this subject does not, perhaps, make this point sufficiently clear.

In the second place, it should be noted that certain of Mr. Jacobs' references are citations of identical material, so that the total number of his literature sources is fairly unimpressive. Thus, the Dispensatory of the United States, 25th Ed., p. 1217, mentions the work of Heffter (1894), and his conclusions as to the toxicity and physiological fate of safrole. The work cited, however, is merely an abstract of a paper delivered in Rome, in 1894; Heffter's full report was published in 1895. Neither the *Dispensatory* nor Mr. Jacobs refers to this later article; but it is the studies described by Heffter in 1895 that form the basis for the remarks on safrole in Spector's *Handbook of Toxicology*, later cited by Mr. Jacobs. Thus what might mistakenly be understood to be *three* references really turn out to be only *one*.

The first text cited by Mr. Jacobs, and the one upon which he appears to rely most heavily for his conclusions, is that of Gleason, Gosselin and Hodge. Mr. Jacobs repeats these authors' estimate of the toxicity of a denture adhesive containing sassafras oil, and infers from it what the lethal dosage of safrole might be: "It can be calculated that a lethal dose would range from 50 to 150 milligrams per kilo of body weight, that is, from 4.5 to 9 grams per 150-pound man." This estimate will be compared shortly with that of Heffter (1895). But first—since Mr. Jacobs' statement will be taken seriously by many of his readers—it is necessary to make certain observations about the text on which he bases his estimate. A considerable part of the work of Gleason et al. is devoted to a listing of the estimated toxicity of approximately one thousand compounds. It is important to bear in mind that these estimates are not based upon any work done by the authors; they are drawn from the literature. Under such circumstances, the difficulty of arriving at figures for lethal dosage is frankly acknowledged by Gleason et al. (p. 19): "With only a few compounds are clinical data adequate to establish a toxicity rating." Further (p. 17): "A dilligent but not exhaustive survey has been made to locate relevant toxicity data for each of the ingredients listed in this compilation." These admissions must be remembered when, on p. 76, we read: "Oil of sassafras. 80% safrole. *Thought to lie* near the borderline between toxicity classes 4 and 5." (The italics are mine.) No authority is cited. For the reader interested in pursuing the subject further, Gleason et al. (p. 13-14) include a list of "General references useful in clinical toxicology." The writer of the present article examined 19 of the 21 sources listed; of these, only L. S. Goodman and A. Gilman, in *The Pharmacological Basis of Therapeutics*, New York, 1955, mentions sassafras oil or safrole—a passing reference to the fact that the oil is a counter-irritant. In the light of these facts, it would be interesting to learn how Gleason, Gosselin and Hodge arrived at a toxicity rating for sassafras oil that places it between Class 4—which includes Warfarin—and Class 5—which includes corrosive sublimate and aconite. Moreover, any precise estimate of lethal dosage based on the work of Gleason et al. must be considered highly tentative.

The earliest source cited by Mr. Jacobs describes a case of poisoning following the ingestion of a teaspoonful of oil of sassafras (Allbright, 1888). The subject, who took the oil by error at about 2 P. M., began shortly to vomit; later he suffered hallucinations (imagining he was in heaven) and intermittent unconsciousness. Treated with emetics, he responded rapidly, regained consciousness about midnight, and was ready for breakfast by morning. "With the exception of feeling 'a

(Continued on page 62)

*Technical Library Consultant


A NEW ROAD TO SUCCESS
Please ask for
data sheets and samples


WITH NEW AROMATIC CHEMICALS
ISO-BERGAMATE "DRAGOCO"
resembles the fragrance of the bergamot oil, along with a soft fruitiness and a delicate, woody background.
DRAGO-JASIMIA
to accentuate fine flower scents – particularly for jasmin – proven essential in deluxe perfumery.
LACTOSCATONE "DRAGOCO"
provides a typical fecal note with a warm animal background and a delicate woody note.
DRAGOCO INC.
250 West Broadway, New York 13, N.Y.
Tel. CAnal 6 – 5813/15

little weak', he made no further complaint." Mr. Jacobs has reported this case correctly; but we will see in a moment what another writer (Craig, 1953) does with it, and what damaging conclusion he draws from his own misstatement.

The next report cited by Mr. Jacobs is that of A. Heffter (1894; but see above). Since Heffter's work (1895) appears to be the only pharmacological study of the safrole series ever published, it merits close study.

Heffter reports six experiments. Of these the first was on a frog. The remaining five were performed on four rabbits and a cat, which were subjected to various doses, variously administered. In Experiment 3, for example, a rabbit of 1570 g. weight was given 2 cc of safrole via the stomach; it died. In Experiment 6, a cat, weight 3020 g., was used. It was given a subcutaneous injection of 1 cc of safrole; surviving this, it was given a second injection of 1 cc three days later. The cat then died. It is interesting to note that Heffter first gave a dose of safrole to a dog, which vomited it up. Doses as small as 0.75 g. caused vomiting, so that Heffter resorted to rabbits for further experiment: in these "the toxic properties of the substance were soon apparent." Dr. Heffter's conclusions as to the lethal dose of safrole are given on p. 354 of his full report (1895): "The lethal dose, via the stomach or subcutaneously, approximates 1.0 pro kilo. Injected into the vein, 0.2 pro kilo killed rabbits." Translated into terms of toxicity to humans—always a questionable thing to do—this means that extremely unrealistic amounts of safrole must be ingested or injected to produce fatal results. Heffter's figure, incidentally, should be compared with the estimate made by Mr. Jacobs.

(It may be of interest that Heffter [1895] cites two cases noted in early American medical literature. The present writer was unable to trace to its sources the first of these citations—a report by Dr. Charles L. Hill, apparently read before a medical convention in April, 1884. But Dr. John Bartlett (1885) reports the work of Dr. Hill at some length. Dr. Hill had been called in to treat a boy found lying unconscious on the floor, with a strong odor of sassafras in his breath; the boy had taken two large swallows of the oil. This patient responded rapidly to treatment. Interested in the case, Dr. Hill made experiments to determine the toxicity of oil of sassafras. It is instructive to learn his methods. He injected ten drops under the skin of a mouse, which died. The doctor then fed the oil to mice via a glass rod, dipped in the oil and held before the animals, which seized it. "This was repeated at intervals of a few minutes, until a sufficient quantity was taken to produce the *desired results.*" (The italics are again mine.) These animals apparently recovered, as did a dog and some cats. No comment on the value of these experiments is necessary.

But Dr. Bartlett himself has a contribution to make. He cites a case of miscarriage induced by taking sassafras tea—tea "made from four or five pieces of the root, as large as the thumb and as long" would produce ecbolic results.)

The case report of Kläsi and Roth (1915)—the next mentioned by Mr. Jacobs—has considerable interest. It describes the symptoms following ingestion of several swallows of a putative Macassar Oil. The exact nature of the compound ingested is shrouded in a thick fog. The patient himself reported it as labeled "Eglisauerwasser," but it *may* have been Macassar Oil (rubifacient originating in Java). The analysis of this compound was made by a Prof. Hartwich, who informed the authors of the study that the "odor of the liquid was due to an essential oil, safrole, and that it seemed likely that other organic compounds were present, which may have contributed to the toxic syndrome." The Professor had a point. However, since the patient's delirium lasted for precisely the length of time that his breath had an *anise* odor, the authors decided that the chief compound responsible for the toxic picture could safely be concluded to be *safrole.* It is noteworthy that the patient, on admission to the hospital, had an *anise* breath; in fact, in their report of the case, the authors consistently use the term *anise*-like with reference to the patient's breath, rather than *safrole*-like. Moreover, the original liquid seems to have had an anise odor, though Prof. Hartwich reported it to have a safrole aroma. In their summary of this case, the authors lament that "unfortunately we were unable to determine whether safrole alone, or in combination with another organic compound, was responsible for the toxic symptoms." In view of the confusion surrounding the nature of the compound ingested, and the vagueness of the analytical data, certainly no definite conclusions as to the exact toxicity of safrole can be drawn from this case.

Mr. Jacobs next cites the work of Dr. David I. Macht. The work noted by Mr. Jacobs is the shorter of two articles published in 1938 (for the full citation see the references at the end of this article.) In neither of his two articles does Dr. Macht describe his experiments in detail, or note the exact quantities of sassafras oil and safrole applied to the fur or shaved skin of his mice. However, he notes in both articles that "in all cases a sufficiently large dose (1 cc or more) applied to mice or rats was fatal. . . . Smaller quantities of these oils produced definite pharmacologic reactions but not death." Dr. Macht worked with both sassafras oil and safrole, but his reference to the absorption of 1 cc applies to sassafras oil. It should be remembered that Dr. Macht was not concerned with the ingestion of his experimental compounds, and that the amounts he applied to the fur and shaved skin of his subject animals, if translated into human equivalents, would be very large indeed.

Mr. Jacobs next cites an article by J. O. Craig (1953). This discusses the treatment of five cases of poisoning among children following ingestion of undetermined amounts of oil of sassafras. "All five children took the oil themselves, so no reliance can be placed on the estimated amount taken. *It is probable that all the figures are overestimates.*" (Once again, the italics are mine.) The reputed amounts of oil ingested ranged from $^3/_4$ dram (a two-year old child) to 2 ounces (a 21-month child). "The use of emetics is well exemplified in Case 2. The mother sought the help of the police as soon as the accident occurred, and the police gave repeated emetics until the vomitus no longer smelled of oil. This therapy, more energetic than is applied to the majority of poisoning cases before referral to hospital, may well have averted serious symptoms. . . ." This case is the only one in which emetics were successfully tried, and Dr. Craig's language in describing it is moderate; yet Mr. Jacobs (and the *Dispensatory*) report that "five children who had ingested sassafras oil recovered, probably because of the prompt administration of emetics." Anent the toxicity of sassafras oil, Craig has this to say: "As an adult male has died after taking one teaspoonful of oil of sassafras, it is probable that a few drops would be sufficient to kill a toddler." The adult male whose *death* is reported by Craig is actually the young man whose *short illness* is noted by Allbright (1888; see above). Craig mistakenly reports that the *Dispensatory* records the death of this patient. In the light of Dr. Craig's misstatement of fact, little reliance can be placed on his estimate of the toxicity of oil of sassafras. (It

seems likely, also, that Dr. Craig's article may have formed the basis for the estimate made by Gleason et al., noted above.)

Dr. Craig's article ought also to be weighed in the light of an earlier article (Craig and Fraser, 1953), not cited by Mr. Jacobs. In this earlier report, Table 4 (p 262), "Medicine intended for external use excluding atropine," shows sassafras oil to have been responsible for five cases of poisoning—presumably the five cases later discussed by Dr. Craig alone. It is noteworthy that Table 7 of the work of Craig and Fraser (p. 263), "Main poisons assessed as regards potential danger" does not include sassafras oil!

It has already been pointed out that the next authority cited by Mr. Jacobs, Spector's *Handbook of Toxicology* (1956) merely refers to the information in Heffter's article (1895) discussed above. Spector himself makes no comment or estimate.

The present writer has not seen the reports "submitted by a commercial laboratory which was doing work for a large food manufacturer to the Food and Drug Administration," nor does Mr. Jacobs discuss them in detail. Similarly, the writer has not seen the reports of investigations carried out by the FDA, although here again Mr. Jacobs reports these briefly. But anent these reports, Mr. Jacobs himself has this to say: "It must be stressed that in all these experiments, even those in which the subacute effects on rats were studied, the amount of safrole and flavor fed was far in excess of the quantities that are normally consumed by human beings."

As anyone who has ever worked with toxicological literature knows, it is often extremely difficult to locate reports on specific toxic substances; even an "exhaustive" search can not really claim to be definitive. But to the material that *can* be located certain editorial criteria ought to be rigidly applied; any writer on the field has a heavy obligation to evaluate his sources and to report them correctly. This is particularly true in the field of food and food additives—right now an area of inflamed controversy. No serious conclusion should be drawn from data studied through intermediate sources, since misstatements and exaggerations tend to be repeated and to grow larger with each indirect quotation.

Finally, it needs iteration that "every material, including normal physiological constituents, may be toxic under certain circumstances" (Kirk, 1955). To determine these circumstances is a lengthy and difficult business. It is the work of the professional toxicologist—of whom it has recently been written: "It must be emphasized that the toxicologist can never prove a material to be absolutely safe for indiscriminate human use. His work is restricted to animal experiment and a limited number of human volunteers. Work with one species never proves absolutely the response of another species. Only extensive prolonged human use under careful observation for generations can prove safety absolutely." (Smyth, 1954.)

Literature Cited

L. M. Allbright. "A case of poisoning by oil of sassafras," in: *Cincinnati Lancet and Clinic* 21 1888), 631-632.

J. Bartlett. "Remarks on the toxic properties of sassafras," in: *Chicago Medical Journal and Examiner* 51 (1885), 497-504.

J. O. Craig. "Poisoning by the volatile oils in childhood," in: *Archives of Disease in Childhood* 28 (1953), 475-483.

J. O. Craig and M. S. Fraser. "Accidental poisoning in childhood," in: *Archives of Disease in Childhood* 28 (1953), 259-267.

Dispensatory of the United States of America, 25th Ed. Phila., J. B. Lippincott, 1955.

M. N. Gleason, R. E. Gosselin and H. C. Hodge. *Clinical Toxicology of Commercial Products.* Baltimore, Williams & Wilkins, 1957.

A. Heffter, in: *Atti XI Congresso Medico Internazionale* (Rome, 1894), Vol. 3, Section *Farmacologia*, p. 32-33.

A. Heffter. "Zur Pharmakologie der Safrolgruppe," in: *Archiv für experimentelle Pathologie und Pharmakologie* 35 (1895), p. 342-374.

P. L. Kirk."Toxicology; isolation, identification and determination of poisons," in: *Annual Review of Medicine* 6 (1955), p. 295-310.

J. Klasi and O. Roth. "Über einen Fall von Safrolvergiftung," in: *Monatsschrift für Psychiatrie und Neurologie* 38 (1915), p. 235-250.

D. I. Macht. "The absorption of drugs and poisons through the skin and mucous membranes," in: *Journal of the American Medical Association* 110 (1938), 409-414.

D. I. Macht. "The absorption of drugs and poisons through the skin and mucous membranes," in: *Archives Internationales de Pharmcodynamie et de Thérapie* 58 (1938), p. 1-26.

H. F. Smyth, Jr. "Toxicology," in: *Annual Review of Medicine* 5 (1954), p. 349-362.

W. S. Spector, Ed. *Handbook of Toxicology.* 2 vols. Phila., W. B. Saunders, 1956-1957.

Flavor News

The National Fruit & Syrup Manufacturers Assn. will hold its forty-first annual convention April 18 and 19 in the Roosevelt hotel, New York, N. Y. Robert T. Benjamin, the alert chairman of the public relations committee of the association reports that a lively and vitally interesting program is planned. This will include prominent speakers, forums on timely and technical subjects and a round of social activities for members and their guests.

* * *

How flavors and odors are related and many other interesting questions about flavor were answered in a radio broadcast March 12 by Dr. Kurt S. Konigsbacher, an authority on flavors and odors, in an interview with Dr. Joseph Fiore of Fleishmann Laboratories. Dr. Konigsbacher is associated with Evans Research & Development Corp. Radio station WFUV-FM from which the interview was broadcasted is operated by Fordham University. The interview was one of "Everybody's Chemistry" program series sponsored by the American Chemical Society.

* * *

Representatives of the National Fruit & Syrup Manufacturers Assn. and the International Assn. of Ice Cream Manufacturers in New York who met last Autumn to discuss methods of establishing a closer liaison between the two industries are progressing with the work of pooling and coordinating merchandising efforts.

* * *

Kalva Corp. Waukegan, Ill., has perfected new egg nog bases which produce egg nog drink and egg nog ice cream. The bases have had excellent acceptance, Kalva reports, because of their appealing flavor and rich yellow color.

* * *

Cacao Barry, S. A., of France, one of the largest European cocoa plants, has recently set up a North American branch, known as Cacao Barry, Inc., which is located at 366 Madison Ave., in New York, N. Y. The general manager of the new branch is Paul P. Ashley, who formerly managed the Commodities Department of Ufinindo International Corp.

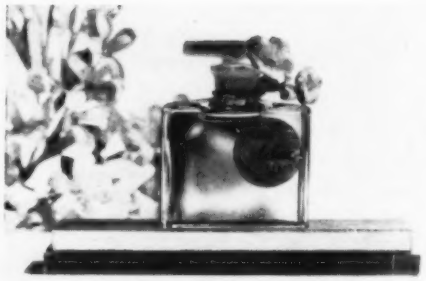
* * *

Warner-Jenkinson Co., has developed a new one-pound "zip-string" container for certified food colors. A string opens the entire upper portion of the can. It is claimed that there is no loss of color in corners and pouring of the color is facilitated thereby.

* * *

Harvey Hahn, sales manager of the chocolate division of Robert A. Johnston Co., announces the retirement of two long standing veterans. Ray J. Doyle, a district manager, and Dominic Michela, a sales representative, are retiring after a combined total of 58 years of service to Robert A. Johnston Co.

Packaging and Promotion



1.

2.

3.

1. LENTHERIC

Lentheric's new perfume Red Lilac will be presented this Spring in a distinctive crystal bottle. A clear glittering square, topped by a ground glass rectangular stopper, the bottle is classic in line. A round gold colored label with black printing decorates the front of the bottle, and a cluster of Red Lilac blossoms encircle the neck. Set in a gold-on-lilac colored base, the bottle is shielded by a clear acetate cover.

2. PRINCE MATCHABELLI

Prince Matchabelli's novelty Cologne Foursome, Holiday in Fragrance, appeared in stores March 1st. Four new colognes, named for four world-famous vacation spots, are glimpsed through cut-outs in brightly colored balloons on the front of the box. The colognes reflect the mood and color their names suggest: Catalina Blue, Venice Gold, Bahama Pink, Carbie Green. A printed insert in each Holiday in Fragrance invites the customer to become a member of a product testing panel and asks her to give order of preference for these four colognes.

3. CAMPANA SALES CO.

Lightweight, plastic containers are now being used by Campana Sales Co. for the packaging of Magic Touch and Solitair make-up products. The new package for Magic Touch, a cream make-up applied to the face with the finger tips, is made of white polystyrene. Brand identified and shade are applied to the compact cover with a gold print. The compact for Solitair, a feather-weight make-up, is made of black polystyrene with brand and shade identities also on the cover in gold print.

4. JOHN H. BRECK INC.

"Love Lace Cologne Mist," a new aerosol cologne has been introduced by John H. Breck Inc. "Love Lace" is available in a 3.5 ounce bell-shaped glass bottle, sheathed in pink plastic. Each unit is individually packaged in an embossed white lustre-board box, printed in pink and gold. A special counter display unit, also of white, embossed lustre-board printed in pink and gold, designed to hold three packages of

4.

5.

6.

"Love Lace," is being offered retailers during the introductory period. Suggested retail price for "Love Lace" is $3.00 plus tax.

5. REXALL DRUG CO.

Push-button toothpaste packaged in an aerosol can is now being introduced in test markets by the Rexall Drug Co. It is made possible by the use of compressed nitrogen gas as the propellant, which permits dispensing of the paste in its original unaerated form. The cost of the nitrogen-propelled package is said to be comparable to that of a squeeze bottle and no greater than that of a large collapsible tube and its carton.

6. YARDLEY

A major promotion will be launched this month by Yardley of London, tailored to induce ensemble purchases of English Lavender, April Violets, and Red Roses items. During the promotion a sample-size gift bottle of After Bath Freshener will be offered with every purchase. Bath crystals, dusting and talc powders, soap, and After Bath Freshener in English Lavender, April Violets, and Red Roses fragrances will be featured in window and counter displays. The ensemble idea on which Yardley is building the promotion is aimed at creating sales of related products in matching fragrance and color scheme.

7. BRISTOL-MYERS

Trig deodorant for men, featuring "roll-on" application and a "new male scent" was launched this month with what is said to be the heaviest advertising campaign ever used to introduce a men's deodorant. Deliveries to retailers started the first of the month and advertising, mostly in network television and men's magazines, is scheduled to break very soon. The 1 oz. size will retail for 73¢, the 1½ oz. size for 98¢.

7.

8. TUSSY

A new pink, white and gold folding carton has been introduced by Tussy Cosmetics for Bright Secret Beauty Lotion, which went on sale March 1st. The new carton features a full-size outline of the lotion bottle on the cover and is decorated with the familiar Bright Secret daisies. It is printed in pink and gold bronze on white machine clay coated stock and is vinyl coated for durability and appearance.

8.

There's nothing like a new hat

to pick up the spirit and add beauty to the wearer.

And there's nothing like a new Goldcôted Richford Basket-Weave Cap to transform ordinary jars and bottles into radiant, sales-winning containers for your products.

These sparkling additions to the boudoir, finished in gleaming Goldcôte or Silvacôte, are available in sizes 20/410, 33/400, 48/400, 51/400, 58/400, 63/400 and 70/400. Remarkably low in cost. Write today for samples and prices.

RICHFORD CORPORATION

Offices and Plant:
3618 Oceanside Rd.
Oceanside, N. Y.

Showrooms:
Empire State Bldg.,
350 5th Ave., N. Y., N. Y.

New PRODUCTS & IDEAS

SKIN-PACKAGING

A new skin-packaging process has been developed by the Print-A-Tube Co., in which no special coating or perforating of the package board is necessary. The Print-A-Tube process utilizes simple machinery. The board is placed upon a porous bed and the articles to be packaged

are positioned on the board. A heater system and a vacuum pump, plus a frame, are used to lay the Poly-on-Mylar Vacuumized films over the items on the board. The film is heat sealed directly to the board. Since the board remains porous, the vacuum is drawn directly through it, pulling the film tightly about the objects being packaged.

INERT GAS FILLING SYSTEM—1.

Builders Sheet Metal Works Inc. has designed and is producing a new inert gas filling system. According to the manufacturer, it is an easy to operate system for the dispensing of products such as toothpaste, shaving cream, cold cream, adhesives, food products and other viscous type liquids.

FOAM STABILIZER

A new foam stabilizer and hair softener, "Glycomul", is now being offered in commercial quantities. Used alone, it is of value as a lotion base for thioglycolates, calamine, zinc oxide, phenol, sulfur, ammoniated mercury, ichthammol and camphor, according to a statement by the company. It is reported to be stable to mild alkalis, acids and salts at normal temperatures.

When used in the presence of a weak acid such as phosphoric it is recommended by the firm as a softener and anti-static agent for use on the hair, and when thickened can be used as a grooming aid.

PELLET MILL

The Sprout-Waldron Laboratory Pellet Mill is designed to take into account those factors which cannot be scaled down by a direct mathematical process. The laboratory model is a full strength model, but because of short runs and low production requirements, the power requirements are low and modifications have been made on the standard production model which affect only the capacity and over-all dimensions of the pelleter. The cast iron base and main bearing support of the mill are cast integral. There are two main bearings on which the die is mounted, and two bearings, one in each roll assembly, making a total of only four anti-friction bearings in the mill. Dies are made of tool steel forgings and are hardened to resist abrasion and erosion. They are available from stock, with perforations ranging from 3/32" to 1" diameters. The mill is driven through a silent V-belt drive and includes a safety shear pin to automatically stop the pelleter when subjected to excessively heavy or shock loads. Standard construction is of carbon steel but, if needed, all parts of the pelleter that come in contact with corrosive materials can be furnished in stainless steel.

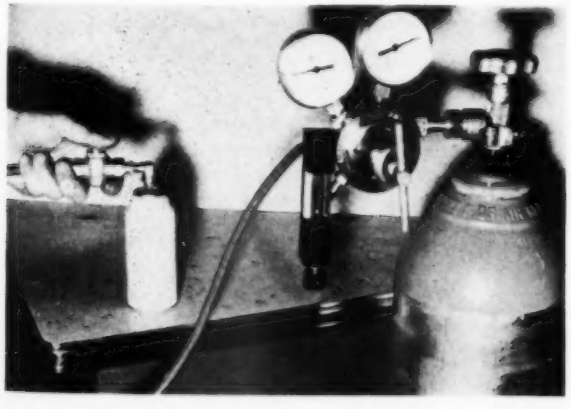
COLORIMETER

Fisher Scientific Co. has introduced a new ASTM Colorimeter using an objectively defined ASTM Color Scale that was established in cooperation with the National Bureau of Standards.

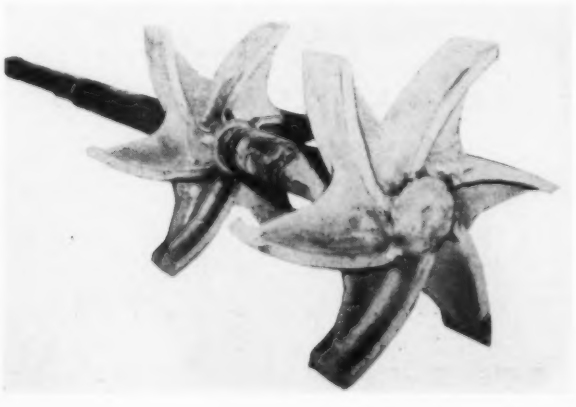
PLASTIC AGITATORS—2.

Blades up to 10 inches in diameter are one of the features of these Haveg agitators. A completely enclosed steel drive shaft protected from corrosion, provides the internal strength for severe operating conditions. Said to outwear stainless steels and to provide maximum corrosion resistance at less expense, these agitators are reportedly suitable for all free-flowing liquids and thin sludges. Other models for heavy slurries can be designed to meet individual conditions, according to an announcement by Haveg Industries, Inc.

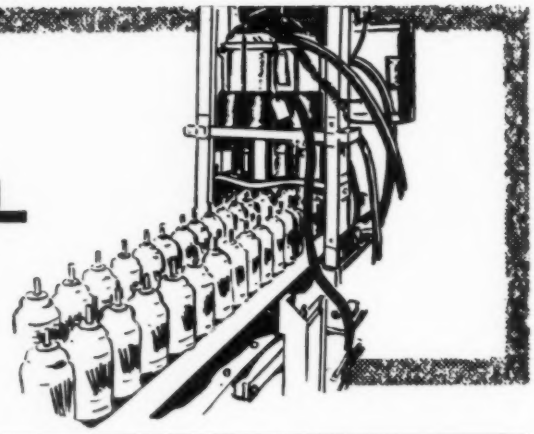
1.



2.



Guide to AEROSOL PACKERS



EAST

SUN-LAC INC.

"Successful through Service"

274 LAFAYETTE ST., NEWARK 5, N. J.

Aerosol Packaging

Small Runs Solicited on . . .

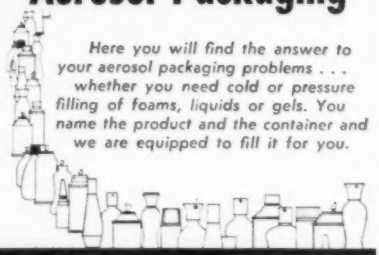
Cosmetics, Creams, Foams, Perfumes, Powders, Household Items, Insecticides, Industrial Products, & Plastic Sprays.

We formulate and develop new products. Quality controlled productions—bulk storage facilities, pressure & "Cold Fill" facilities. Special plan for companies requiring national distribution. We supply samples and do experimental work at no charge. Write or phone MA 3-7727 for full information.

Powders—Liquids—Emulsions

EAST

Aerosol Packaging



Here you will find the answer to your aerosol packaging problems . . . whether you need cold or pressure filling of foams, liquids or gels. You name the product and the container and we are equipped to fill it for you.

POWR-PAK, INC.

643 North Ave., Bridgeport, Conn.

EAST

Thomasson

OF PA., INC.

AEROSOL FILLING

for Contract and Private Label Marketers

Also Liquid Filling

Complete Research and Laboratory Facilities
Constant Quality Control

Norristown, Pa. BRoadway 5-4355

Old Empire

AEROSOL FILLING
AEROSOL CONCENTRATES
SHAVE CREAM
HAIR LACQUER
COSMETIC SPECIALTIES
PHARMACEUTICAL SPECIALTIES

MT. PROSPECT & VERONA AVES.
NEWARK, N. J. • HUMBOLDT 4-2121
N Y C. WORTH 4-7870

IMAGINATION • CREATION • REALIZATION

ATi

AEROSOL TECHNIQUES

INCORPORATED

Exclusively private label manufacturer of aerosol cosmetics, pharmaceuticals and chemical specialties.

Bridgeport 5, Conn. EDison 6-0176

MID-WEST

Symbol of Experience in Aerosol Development & Packaging

for Aerosol "Know-How" Call

CONTINENTAL FILLING CORPORATION

123 N. Hazel • Danville, Illinois

SUBSCRIPTION ORDER FORM

AMERICAN PERFUMER & AROMATICS • 48 West 38th Street • New York 18, N. Y.

Enter my subscription to AMERICAN PERFUMER & AROMATICS for one year at $5.00 ☐ *Payment Enclosed* ☐ *Bill Me Later*

NAME ..... **COMPANY** .....

ADDRESS .....

CITY ..... **ZONE** ..... **STATE** .....

(NOTE: This rate effective in USA & Canada only. To cover added postage costs, subscription rate in other countries is $15.00 per year.)

Aerosol NOTES

by Dr. Winston H. Reed

Production Cost Reduction

Cost reduction is very much in the minds of management these days. The drive to improve profits or strengthen the competitive picture is causing many aerosol production managers to undertake a careful search for operating economies within their bailiwick. From first hand inspection of a number of aerosol production lines, I believe that there are several good areas worthy of a careful "look-see." Likely objectives are—(1) Improved materials storage; (2) Improved materials handling; (3) Reduction in variety and sizes of containers and valves; (4) Reduction in use of odd propellent ratios; (5) Wider use of preventive maintenance.

Aerosol plants and departments have, in many cases, grown like Topsy. Rush to get going sometimes precluded careful attention to layout. Rapid growth necessitated many changes. Many an originally well conceived layout has now been squeezed or changed to get out the production but with less economy. Attention to these details will not cost much but can yield appreciable savings.

1. Materials Storage

Storage areas should be five to seven times production space. Containers and valves, finding the greatest use, should move the shortest distance. Is this true in your warehouse area? Inventory records should indicate space location. Space location should be well identified by *adequate* signs.

Have you ever walked through some storage areas and tried to read the code used to identify the section? The signs are often made with a pee-wee stencil, with too little paint, or are too dirty. Better make those signs big, clear and legible, and keep them that way by periodic repainting. Mixups are expensive.

2. Materials Handling

Pallet and tow truck handling are widely used. The larger plants are using well developed conveyor systems. Even the smaller companies should consider the more extensive use of light, portable conveyors. Speedways Conveyors, in Buffalo, N.Y., make a series of light weight aluminum conveyors handy for a variety of jobs.

3. Reduction in Variety and Sizes of Containers and Valves

Contract and custom fillers, of course, find it necessary to stock a wide variety of containers and valves, but those companies marketing their own line of products could, in some cases, standardize on fewer container sizes and gain in operating economies.

4. Reduction in Use of Odd Propellent Ratios

In plants with limited propellent storage facilities, the use of odd propellent ratios for special products can be troublesome on scheduling, and cause problems due to mixups at the changeover of runs. It is often easier to obtain the desired performance on some new formulation by changing the operating valve rather than by using a propellent mix with some pressure different from that used with the standard products. Even the use of a different operator orifice will sometimes do the trick. The laboratory should be thoroughly aware of the problems created in production when a special propellent mix is called for on some short run item. It is surprising how much trouble can be caused when this rather obvious point is ignored.

5. Wider Use of Preventive Maintenance

It is an old and trite saying that the best place to stop trouble is before it happens. This message, like those on safety, has to be continually repeated and pushed by management to achieve results. If the operating line people and maintenance crew can be provided with some convenient spot for jotting down, briefly, notes re line equipment that may need attention, then the foreman will have a written record to turn over to maintenance and also a record for follow up. A bound (not loose leaf) notebook, hanging from a nail with a pencil, will be fine. Verbal reports have a way of being forgotten in the hectic day's rush. Packing glands, pipe couplings, fittings and inaccessible machinery should get special attention. Layouts should not be so crowded that important equipment and motors get placed in a position difficult to check and service.

While all of the points considered above are a matter of common sense and good plant practice, they are also often neglected intermittently and should get attention where production economy is considered important.

Taxable and Non-Taxable Cosmetics

For first time the government issues a list of what it considers taxable and non-taxable toilet preparations and toilet articles for guidance of the industry.

In Revenue Ruling 58-38 published by the Internal Revenue Service for the first time a serious effort is made by the government to publicize a list of toilet preparations which are considered taxable and also a list which it considers non-taxable.

In connection with the lists the following statements are given. The italics are those of an analyst for the Toilet Goods Association.

"Section 320.50(a) of Regulations 51, made applicable to the 1954 Code by Treasury Decision 6091, C.B. 1954-2, 47, provides that the tax applies to the sale by the retailer of the articles enumerated above and similar articles commonly or commercially known as toilet articles, which are used or applied, or intended to be used or applied, for toilet purposes. *Any article advertised or held out for toilet purposes, or for any purpose for which the articles enumerated in the law are customarily used, will be subject to the tax regardless of the name by which it may be known or distinguished.* The tax attaches to the sale by the retailer of any preparation which is used or applied or intended to be used or applied for toilet purposes or used in connection with the bath or care of the body, or applied to the clothing as a perfume or to the body as a toilet article. *The fact that any particular product, preparation, or substance coming within the scope of the law may have, or be held out to have, a medicinal, stimulating, remedial, or curative value does not exempt it from the tax, if it is used, or held out for use, as an adjunct to the toilet or for toilet purposes.*

"Under the provisions of section 4022 of the Code, the tax on toilet preparations shall not apply to lotion, oil, powder, or other article intended to be used or applied only in the care of babies. Section 320.50(c) of the regulations provides that the determination of whether toilet articles are intended to be used or applied only in the care of babies will be made only by reference to the advertising with respect to, and the labeling contained on, the article. If an article is advertised and labeled as being for use in the care of babies and is not advertised or labeled as usable by persons other than babies the article is exempt from tax even though the particular purchaser buys it for adult use. On the other hand, *an article which is represented by advertising or labeling as fit for adult use, in addition to use in the care of babies, will not be exempt from tax even though sold to a purchaser who intends to use the article only in the care of babies.*

"There are listed below articles which the Internal Revenue Service has held to be toilet articles or preparations subject to tax when sold at retail. There are also listed articles which the Service has held not to be toilet articles or preparations within the meaning of the statute and therefore not subject to tax. The articles or preparations included in these lists should be considered *illustrative* instead of *all-inclusive*.

The lists of taxable and non-taxable cosmetics follow.

TAXABLE

After shave creams, lotions, or powders.
Almond meal and paste.
Anti-perspirants.
Aromatic cachous (Sen-Sen).
Astringents (after shave, anti-perspirants, etc.).
Atomizers containing perfume and other taxable liquids.
Bandoline.
Bath crystals.
Bath milks.
Bath oils.
Bath powders.
Bath salts.
Bath tablets.
Bay rum.
Beauty creams, mask preparations, etc.
Bleach creams and lotions (including freckle remover).
Body powders (unless advertised or labeled for use in care of babies only).
Bouquet liquids.
Breath sweeteners (except candy, chewing gum, Chlorophyll tablets and lozenges).
Brilliantines.
Bubble bath preparations.
Cleansing creams and lotions (including those for removing stains from the skin).
Cocoa butter (if advertised or labeled for toilet purposes).
Cold creams.
Colognes.
Compacts containing rouge or powder.
Compact refills.
Cosmetics.
Cosmetic stocking preparations.
Cuticle softeners and removers.
Deodorants (even though having a medicinal or curative value, if advertised or labeled for use as a body deodorant).
Deodorants (for use in closets, bureau drawers, etc., for imparting fragrance to clothing).
Depilatories (except of the abrasive or mechanical type).
Dusting powders (unless advertised or labeled for use in care of babies only).
Essences and extracts, perfume.
Eyebrow pencils.
Eyelash mascara and eyelash and brow dyes.
Eye shadows.
Face creams.
Face lotions, facial oils.
Face packs.
Face powders, in loose or cake form.
Fingerwave lotions.
Floral essences.
Foundation makeup film.
Freckle removers.
Fuller's earth (if recommended for toilet purposes).
Glycerine and rose water.
Hair bleaches.
Hair dressings.
Hair dyes.
Hair lotions.
Hair oils.
Hair pomades (regardless of whether they are colored or scented).
Hair removers (except those of the abrasive or mechanical type).
Hair restoratives.
Hair sprays.
Hair straighteners.
Hair tints and rinses.
Hair tonics.
Hand creams.
Hand lotions.
Henna.
Lavendar water.
Leg makeup.
Lip ices and salves (if colored or perfumed or if recommended for the prevention of chapped lips or for other toilet purposes).
Lip pomade.
Lipsticks, lipstick refills.
Liquid face powder.
Liquid lip color.
Liquid stockings.
Manicure preparations.
Mascara.
Massage creams.
Mittens containing toilet powder.
Mustache wax.
Nail bleaches.
Nail enamels.
Nail enamel or polish removers.
Nail lacquers.
Nail polishes, paste, powder or liquid.
Nail whitener.
Olive oil (colored, or perfumed, or recommended for toilet purposes).
Orange flower water.
Oris root.
Perfumes.
Perfume ingredient kits (tax applicable to that portion of retail selling price which is allocable to the perfumery ingredients. Test tubes, droppers, etc., not taxable).
Perfume novelties, containing perfume.
Permanent waving creams, lotions, neutralizer.
Permanent waving kits (curlers, soap, nontaxable shampoos, caps, etc., in kits may be excluded in the computation of the excise tax if retailers records show comparative values of taxable and nontaxable articles in kit, based upon separate retail prices, or upon cost, if they are not actually sold separately).
Peroxide (regardless of its strength, if recommended for use in bleaching the hair or for other toilet purposes).
Petroleum jelly (if scent or color added).
Plucking creams (for use in connection with plucking hair).
Pore cleansers (other than soap).
Powder bases (liquid and cream).
Protective creams (having toilet claims

Continued on page 77

LOEBEL

RESEARCH OF DEPTH AND IMAGINATION

Constant research for more than 65 years has made the contribution of Firmenich to the perfumery world both substantial and imaginative. Joining the academic approach to technical skills, Firmenich has achieved the synthesis of a wide range of natural materials, created new tonalities, discovered complex notes hitherto unperceived. These specialties enjoy universal acceptance and their creators have been honored by the Nobel Prize and four International Awards administered by the American Chemical Society. The originality of their research has been shared with fellow scientists in more than 300 technical papers. Firmenich technicians are highly qualified to assist you in your creative problems and in the use of Firmenich specialties in your imaginative practice of the art of perfumery.

FIRMENICH INCORPORATED

FIRMENICH & CIE.
SUCCESSEURS DE
CHUIT, NAEF & CIE.
GENEVE SUISSE

250 WEST 18TH STREET, NEW YORK 11
FIRMENICH OF CANADA, LIMITED,
348 WALLACE AVENUE, TORONTO
CHICAGO OFFICE: 612 NORTH MICHIGAN AVENUE
LOS ANGELES, 1756 MALCOLM AVENUE
GENEVA · PARIS · LONDON

MARYLAND GLASS DESIGNERS USE THE MICROMETER FOR PRECISION ACCURACY...

BUT ESSENTIALLY

Package design begins with an idea

Every craftsman knows his tools, but the creative package designer must do more—first he must bring an idea to life. An idea that says Yes to questions like: Is this container distinctive? Will it sell on the shelf? Does it pack properly, ship safely? Our design department specializes in designs that stop the eye . . . start the sale. For an affirmative solution to your design problems, contact Maryland Glass Corp., 2147-53 Wicomico St., Baltimore 30, Md.

STOCK DESIGNS— A variety in blue or flint glass . . . in a complete range of sizes . . . is ready for immediate shipment.

PACK TO ATTRACT IN MARYLAND GLASS

Blue or Flint • Jars and Bottles

News and Events

S. C. C. Chemists Discuss Research in TV Interviews

Through the efforts of Gabriel Barnett, chairman of the Education Committee of the Society of Cosmetic Chemists four members of the Society discussed its activities and aspects of cosmetic research on the Herb Sheldon television show February 18. Those who were interviewed were President James H. Baker, Gabriel Barnett, Ruth Bien and former President Sabbat J. Strianse. It is hoped that this will be the first of several such programs to acquaint the public with the work of the Society.

Jatnik Chemicals Wins Display Award

At the Junior Achievement "Open House" for 1958 held recently, the Passaic Chapter of Kiwanis made an award for the best display which was won by Jatnik Chemicals, a J. A. Co. sponsored by The Givauden Corp. At the ceremonies, Dr. Boris R. Kaufman, Passaic Chapter of Kiwanis, presented a bronze plaque to Miss Arlene Logioco, president of the winning company who, in turn, remanded it to Lawrence Ansell, senior advisor from the Givaudan Corp.

Dr. Ernest Guenther's European Lecture Tour

Dr. Ernest Guenther, vice president and technical director of Fritzsche Brothers, Inc., left the United States in February for a program of two lectures which he presented before the British Aromatic Compound Manufacturers' Assn. at the Assembly Hall of the Royal Empire Society in London. His first talk was about the California Citrus industry, peppermint production in Oregon, Mexican lime oil and West Indies nutmeg, ginger, pimenta and citrus production. In the second lecture he presented films taken during his recent African essential survey. From England, Dr. Guenther visited Belgium, France and Germany and returned to the United States early this month.

Flavor and Government Scientists Collaborate on Standards Tests

The Projects Committee of the Flavoring Extract Manufacturers' Assn. of the U. S., represented by its chairman, Dr. Arthur S. Wendt; Dr. David Jorysch, chairman of Scientific Research Committee; Dr. Richard L. Hall, chairman of Food Additive Committee; and John Laughlin, chairman of the Standards Committee; as well as Dr. Harry Burchfield, representing the Boyce Thompson Institute for Plant Research, Inc., and Jeseph R. Maxwell, representing the Vanilla Bean Association of America, had its first meeting on February 6 with Drs. R. A. Osborn, Mitchell and Beacham of the Food and Drug Administration.

Initial standardization tests are being run in the laboratories of the Food and Drug Administration, as likewise by Dr. Richard L. Hall and Dr. David Jorysch. These tests will form the basis of extensive collaborative studies which will be agreed upon at the next meeting in Washington D. C. and which will be carried out by the Food and Drug Administration, and members of the Scientific Research Committee and Standards Committee.

Cosmetic Excise Tax Collections Up for Last Quarter of 1957

Cosmetic excise collections for the quarter ended December 31, 1957 were $22,425,000 an increase of $1,129,000 over the same period in 1956.

Lentheric Increases Price of Tweed Fragrance Hair Spray

Lentheric Inc. increased the retail price of its Tweed fragrance hair spray from $1.50 to $1.75 February 15.

Mennen Enters Stick Deodorant Field with "Speed Stick"

A new stick deodorant designed to be a companion product to Mennen's Spray Deodorant, has been launched by the Mennen Co., Morristown, N. J. It is packaged in a long oval polystyrene container with a knob at the bottom to extend or retract the deodorant stick. The formula, the company states, is non-alcoholic to eliminate evaporation and shrinkage.

FRAGRANCE FOUNDATION MEMBERSHIP LUNCHEON

Officers and directors of The Fragrance Foundation and their guests attend membership luncheon at the Savoy-Plaza where H. Gregory Thomas, president, announced appointment of Hill and Knowlton, Inc. as the first outside public relations counsel in the Foundation's history. (Left to right) Charles Ligne, past president of the Canadian Toilet Goods Manufacturers Association, S. L. Mayham, director, Pierre Harang, vice president, Bernard d'Escayrac, vice president, David Penn, director of Hill and Knowlton International, Mr. Thomas, Jean Despres, director, Joseph A. Danilek, treasurer, Frazer V. Sinclair, vice president, and Charles Granville, director.

British S.C.C. to Hold Congress on Cosmetic Science

The Society of Cosmetic Chemists of Great Britain is holding a Congress on Cosmetic Science. It will take place in London on 15-17 April, 1959. It is intended that the prime purpose of the Congress should cover the practical rather than the academic side of the industry. The subjects to be discussed will be,

Analysis.
1. Physical Measurements.
2. Quality Control Methods.
3. Assessment of Taste and Odour.
4. Assessment of Product Appeal.
5. Analysis of Essential Oils and Perfumery Materials.
6. Analysis of Perfume Compounds and Matching.
7. Mechanized Laboratory Methods.

Manufacturing & Engineering.
1. Mixing, Milling and Storing.
2. Clarification and Filtration.
3. Corrosion.
4. Heat Transfer.

Product Evaluation.
1. Stability.
2. Patch Testing Methods.
3. Advances in Skin Histology.
4. Advances in Allergy Research.

Full details of the arrangements will be available in June, 1958 and those interested in the Congress should write to the Hon. Organizer, Dr. R. H. Marriott, County Laboratories Ltd., County Buildings, Honeypot Lane, Stanmore, Middlesex, *before June 1st., 1958.*

Sources of Financial Aid to Companies Doing Business Abroad

Private and governmental sources of financial aid for American companies doing business abroad will be described at a briefing session on financing foreign operations to be conducted by the American Management Assn. in the Sheraton-Astor Hotel March 31-April 2.

CHANEL 1958 CONVENTION

At the Chanel 1958 Convention, Richard C. Weil, Vice President in Charge of Sales, stands in a group of new Chanel salesmen: left to right, William Spence, representative in the Pacific Northwest and Rocky Mountain states; Otto Weinold, representing a group of Plain States west of the Mississippi River, and Wisconsin; Mr. Weil; and Philip Sagona, a new Greater New York representative.

Henry N. Calisher, new Assistant Sales Manager, congratulates his successor, Philip Sagona, who will cover the New York territory for Chanel.

C.A.I. Assn. of Michigan Announces Officers for 1958

The Chemical and Allied Industries of Michigan, at its first meeting of the year, elected Wayne E. Luff president for 1958. Dan F. Bradley was elected vice president, William F. Harlton, treasurer and Milford R. Polley, secretary. The Executive Committee is made up of A. S. Bedell, Roger S. Carlson, J. Glenn Hicks, and James L. Stevenson.

Ladies' Night Planned by New York Cosmetic Chemists

The New York Chapter of the Society of Cosmetic Chemists is planning a Ladies' Night dinner for its meeting of April 2, 1958 at the Park Avenue Brass Rail restaurant. George Kachajian, chairman of the committee in charge of arranging this annual event, announces that plans are beng formulated to make this the most colorful and enjoyable affair ever. It will feature a special program of particular interest to the ladies.

Harry Isacoff Announces SCC Committee Chairmen

Harry Isacoff, coordinator of van Ameringen-Haebler's aerosol product research and chairman of the New York Chapter of the Society of Cosmetic Chemists, has recently appointed the following committee chairmen to serve during the current year: Program Chairman: John M. Longfellow, Colgate-Palmolive Co.; House Chairman: Robert B. Warfield, Bristol-Myers Co.; Membership Chairman: Irving Colbert, Malmstrom and Co., Inc.; Publicity Chairman: Saul A. Bell, Prince Matchabelli, Inc.; Public Relations Chairman: Maria Wiener, Fluid Chemical Co., Inc.; Education Chairman: Herbert Edelstein, Revlon, Inc.; Entertainment Chairman: George Kachajian, Dow Corning Corp.; By-Laws Chairman: Martin Katz, Revlon, Inc.; Hospitality Chairman: Nicholas J. Accousti, R. H. Macy and Co.; Interprofessional Relations Chairman: Arthur J. Cohane, Leberco Laboratories; Ex-Officio Chairman: Warren B. Dennis, Jr., Lady Esther Division of Chemway Corp.

Revlon Sales and Net Profits Up in 1957

Revlon Inc. reported net sales of $95,174,546 for 1957 an increase of 11% over 1956. Net earnings were $8,999,337 an increase of 7½%.

Evans Research Offers Article on Rancid Foods

A new article on the multi-billion dollar research problem of fat rancidity has been published by Evans Research and Development Corp. "A Nice Fat Problem" is the latest in the "Research Comments" series, a widely distributed Evans Research publication. Included are the current theories on rancidity, the present status of research on antioxidants, and the expected progress in combatting this problem.

Why Present is Favorable for Lavandin Purchases

(From our Grasse, France, Correspondent)

The lavandin essence market at the present time is very much influenced by the almost complete lack of orders which were received in former years at this time.

England, Germany, the United States do not bring a volume of business that is sufficient to maintain the prices in view of the stocks which are still important at the production end and which are waiting to be sold.

The distillers in the production departments: Basses-Alpes, Hautes-Alpes, Drôme, Vaucluse, are getting discouraged, and do not even discuss the prices that are offered to them. So purchases are made without any difficulty, and the farmers that had the intention of enlarging their plantings or to create new ones abstained from doing so, and are turning to other cultures that bring more profit.

These distillers reluctantly sustain a loss which is estimated at 25% in relation to the prices current in September last.

We feel that the moment is very favorable for purchases. The users should take advantage of it. It is difficult to forecast the evolution of the market between now and the next crop. The sagging in prices will reach a limit when the sellers feel that their loss is sufficient, and that they may expect better days. At that time, the drop will be stopped, and the market will resume its firmness, particularly if it is forecast that the next crop may be reduced, certain plantations being abandoned or even pulled up.

Lavender the production and consumption of which are more balanced, is maintaining its prices better, and if the drop follows that of Lavandin, it is doing so in much smaller proportions as regards the qualities with an average holding in esters. The essences with a high content, 50% or over, are not currently in supply.

Turner Tube Co. New Name for 60 Year Old Concern

The third oldest collapsible metal tube manufacturer in the country, the J. S. Turner White Metal Co., of New Brunswick, N. J., has changed its name to the Turner Tube Corp. John E. Turner, Jr., is president. The Turner Tube Corp. was founded 60 years ago at the same location by Mr. Turner's grandfather, John S. Turner. It has manufactured collapsible metal tubes continuously since 1898. During the last decade the company has been near the forefront of the industry in the development in internally lined aluminum tubes; thus enabling the packaging of a wider range of products in this container.

Polak & Schwarz Offer a New Product—Musc 781

A macrocyclic musk which combines the desirable properties of the macrocyclic compounds such as stability, fixative power, blending properties and pureness of odor at a moderate price is the way Polak & Schwarz describe musk 781, a new product created by its chemists.

It is stated to be a colorless liquid and a pure stable compound that causes no discoloration in soap or creams and is soluble in the usual solvents. Moreover, it is pointed out, it possesses a clear musk-like odor with an almost tantalizing suggestion of santalol. Topping the musk odor, the company adds, is an attractive fruity top note suggestive of blackberries. Musk 781 is claimed to give odor effects at all of the stages of the evaporating perfume in which it is used and is therefore an excellent blending agent. Full details about it may be had from Polak & Schwarz.

Senator Malone Guest Speaker At N. Y. Board of Trade Luncheon

Senator George W. Malone of Nevada was the guest speaker at a luncheon of the International Section of the New York Board of Trade on March 7. He is one of the foremost opponents of the extension of the Reciprocal Trade Agreements Act. A question-and-answer session followed his address.

CIBS GUEST SPEAKER

Speaker at the February meeting of the Cosmetic Industry Buyers and Suppliers (CIBS) was Dr. Franz Pick, publisher, "Picks World Currency Report." Dr. Pick's topic was "U. S. Economy." Shown after the luncheon meeting at Toots Shor's are Dr. Pick, left, and William L. Jaeger, CIBS' president.

COMMITTEE APPOINTMENTS

At the CIBS' January meeting, President Jaeger announced the committee appointments for the year. Seated, left to right: Frank Pond, constitution; George A. Kaempkes, director; William L. Jaeger; David J. Warner, historian; Shockley C. Gamage, publicity. Standing, left to right: Robert L. William, program; Robert Ring, membership; John Duncan, 1st vice-president; Harry Cowperthwaite, auditing. Also appointed, but not shown—Samuel Zukerman, awards.

Abstract of James H. Baker Talk Before Chicago S.C.C.

Because all cosmetic chemists are interested in the preservation of their products against microorganisms, Mr. Baker cited five actual cases where the cosmetic product had deteriorated due to bacterial invasion. These cases dealt with products that had national distribution and were, therefore, quite serious. Neither the trade names of the products nor the names of the manufacturers were disclosed.

The condition of spoilage was described, together with the bacteriological method used to solve the problem. In some instances, the amounts and names of the preservatives were given.

It was Mr. Baker's hope that we could learn by the other person's misfortunes and mistakes. He stated that no bacteriological test has ever been devised that is infallible in respect to showing whether a product is absolutely free from the invasion of microorganisms.

The best one can hope for is that his product is adequately preserved against most of the common microorganisms likely to be encountered. Each cosmetic formulation should be examined separately for its preservation properties. Just because a preservative gives excellent results in one cosmetic product does not mean that the same results will be obtained in a different cosmetic formulation.

In closing, Mr. Baker outlined in detail the bacteriological procedure he has used over the past 26 years to rapidly determine the preservation properties of a cosmetic product.

Chromatographic Screening Test to be Demonstrated March 20

The Chromatographic Screening Test announced by the Flavoring Extract Manufacturers Association will be demonstrated at a seminar to be conducted at the Boyce Thompson Institute of Plant Research Inc., Yonkers, N. Y. March 20. Any one planning to attend should notify Dr. David Jorysch, H. Kohnstamm & Co., 87 Park Place, New York 7, N. Y.

or used as skin creams or antiperspirants).
Rock salt bath crystals.
Rose water.
Rouges.
Sachets containing powder or aroma producing materials. When cases, for home storage of lingerie, handkerchiefs, hosiery, or gloves, contain sachets, only the sachets are taxable.
Scalp lotions, scalp ointments, which are used or intended for use as a treatment for dry, oily or falling hair.
Shampoos (containing 5% or less of saponaceous matter, regardless of advertising claims or other ingredients).
Shampoos (if recommended in advertising for conditioning, waving, straightening, bleaching, dyeing, tinting, or otherwise changing the natural appearance of the hair regardless of the saponaceous matter in the product).
Shaving preparations which, in addition to use in softening the beard preparatory to shaving, are recommended for use as a skin conditioner, as an after shave lotion, or for any other toilet purposes.
Skin balms, bleaches, creams, fresheners, lotions, oils, tonics, whiteners.
Stain removers, for use in removing stains from the hands or other parts of the body, unless the product contains more than 5% saponaceous matter.
Styptics (if recommended for use as antiperspirants or for other toilet purposes.
Sun allergy cream (if recommended for use before exposure to sun to prevent sunburn).
Sunburn preventatives—Suntan creams, lotions, oils, etc.
Talcum powder (unless advertised or labeled for use in care of babies only).
Texture creams.
Tissue creams.
Toilet ammonia.
Toilet creams.
Toilet lanolin.
Toilet waters.
Vanishing creams.
Water softeners (perfumed or having toilet claims).
Wave set (paste, powder or lotion).
Witch hazel (regardless of purpose for which recommended).
Wrinkle concealing preparations.

NON-TAXABLE

Acne creams or lotions (if not recommended for toilet purposes).
Anointing oils (if advertised and labeled for use in care of babies only).
Antiseptics (if not recommended for toilet purposes).
Baby oils, powders, creams, lotions (if advertised and labeled for use in care of babies only).
Brushless shaving cream (if not recommended for use after shaving).
Chlorophyll, in lozenge, tablet, or liquid form, to be taken internally.
Corn or callous removers.
Dandruff preparations or products used or intended for use as a remedy for, or as an application for relief from, dandruff (including the incidental elimina-

Continued on page 82

Seminar on Chemistry of Flavors March 25

A lecture and seminar on the chemistry of flavors will be given in the course of Fundamentals of Food Technology at the College of the City of New York, March 25 from 6:15 p.m. to 9 p.m. The meeting will be held at Shepard Hall, Room 502 Southeast corner of 140th St. and Convent Ave. The course is in charge of Dr. Siegfreid Lichtbaum. The lecture on flavors will be given by Dr. Victor G. Fourman, president of the Syntomatic Corp. Visitors are welcome and no admission ticket is needed.

BIMS of New York Hold Record Mid-Winter Party

C. R. Keeley was voted the Bim of the year at the annual Winter Party of the Bims in the New York Athletic Club February 11. A record attendance was scored and a splendid entertainment helped to make the social affair unusually enjoyable. The dinner committee was composed of E. J. Moore, chairman, C. R. Keeley, Harry Griffiths, H. D. Leinbach, Lee Simmons, Philip Heinle. Peter Forsman, president, acted as toastmaster.

Catalog on Approved Kosher Products by Dodge & Olcott Inc.

A catalog listing a select group of flavoring and perfume compounds approved by the Orthodox Union of Jewish Congregations of New York has just been issued by Dodge & Olcott Inc. It was developed for the convenience of many manufacturers who serve the large American Jewish population.

Modalities Discussed at S.C.C. New York Chapter Meeting

Modalities Available for Evaluating Topical Applications was the subject of an excellent lecture by Dr. Donald J. Birmingham, Medical Director and Chief Dermatologist of Occupational Health Field Headquarters, Cincinnati of the U. S. Public Health Service.

In his lecture Dr. Birmingham discussed methods of evaluating both the performance and safety of consumer cosmetics. Thus, as to cleansing creams he discussed methods of measuring cleaning time, rating cleansing efficiency, mildness tests, defatting capacity of products and the final usage tests. Dr. Birmingham has been interested for some time in studying causes of dermatitis.

Harry Isacoff, chairman, presided at the meeting with his usual skill. The next meeting in April will be Ladies Night.

D&O Names Executives to "Dry Materials Division"

The name of the Dodge & Olcott Inc. plant in Hawthorne, N.J. has been changed from Dry Solubles Division to "Dry Materials Division," and executive appointments announced. Previously devoted to the manufacture of dry soluble flavors and seasonings only, the Hawthorne Plant has recently been enlarged to include the processing of the company's spray dried flavors, seasonings and perfumes as well. Director of the plant is William F. Ammon; Assistant Director, Bryan J. McCabe; Chief Chemist, Robert T. Maleeny; Plant Manager, William D. Rosenberger.

HELENA RUBINSTEIN HOSTS PRESS

During "press week" for the spring fashions in New York recently Madame Helena Rubinstein gave a breakfast in her penthouse home for the out-of-town editors. Shown here in her glass-panelled Pallavicini Room, Madame Rubinstein chats with Peg Zwecker of the Chicago Daily News, and her husband William R. Zwecker.

Elizabeth Arden's Horse in First but Loses Rich Race

A freak of fortune caused Elizabeth Arden, the noted cosmetic manufacturer, who is an ardent racing fan and the owner of the famed Maine Chance Farm, to lose the rich Flamingo Stakes at the Hialeah track in Florida March 1 despite the fact that her horse, Jewel's Reward, beat Tim Tam to the wire in the stretch by a head. Immediately after the race an inquiry was lodged and after viewing the photographs the stewards disqualified Miss Arden's horse, Jewel's Reward, for accidental interference in the stretch and dropped the bay colt to second place. Jewel's Reward was ridden by Manuel Ycaza a star jockey from Panama. As a result Miss Arden lost the winner's purse of $97,800. The sympathy of the vast crowd of over 31,000 was with Miss Arden who displayed fine sportsmanship in what must have been a very disappointing loss. As she left the winners' circle she was roundly applauded by the crowd.

Course on Syndets and Soaps At Princeton, N. J. in July

The American Oil Chemists Society short course on syndets and soaps will be held July 14-18.

Emulsion Inversion Discussed at S.C.C. Meeting

A large and interested audience of Cosmetic Chemists and other Scientists heard Dr. Paul Becher discuss "The effect of the Nature of the Emulsifying Agent on Emulsion Inversion" at the February meeting of the N. Y. Chapter of the Society of Cosmetic Chemists. Dr. Becher described the method he used for establishment, within moderately broad limits, of the range of phase concentrations in which a particular type of emulsion (O/W or W/O) is stable for a given non-ionic emulsifier or combination of emulsifiers. His method employs a simple conductimetric titration to determine the points at which inversion occurs during repeated cycling of the oil-water composition of each emulsion system studied. The systeresis loops plotted from the data obtained are used to define the regions of phase concentrations in which stable emulsions exist. A lively discussion period followed.

Human Factor in Industry Stressed at Drug Trade Banquet

The Human Factor in Industry was ably discussed by Philip Lovejoy, former secretary-general of Rotary International before a record attendance of over 2,500 at the annual banquet of the Drug, Chemical and Allied Trades Section of the New York Board of Trade in the Waldorf Astoria hotel, New York, March 6.

The usual reception preceded the banquet and afforded those present to renew old acquaintances and to make new friends. Numerous companies also entertained guests before and after the banquet in private suites. All told it was a well managed affair. Over 800 firms from 37 states were represented at the banquet.

LUNCHEON-MEETING OF COSMETIC CAREER WOMEN

At the Cosmetic Career Women luncheon-meeting recently, Miss Ainslee Arenas, Training School Director for Charles of the Ritz, Inc., lectured on make-up and demonstrated on professional models. The luncheon was attended by about 175 women. Seated on dais, left to right: Carol Sweeney, Harriet Hubbard Ayer Div. of The Nestle-LeMur Co.; Martha Rice of Dorothy Gray Ltd.; Ida Forth Miller of Helena Rubinstein, Inc.; Sybil Mason of Chesebrough-Pond's, Inc.; Miss Arenas; Kay Colton of Morningstar-Paisley, Inc.; Anna Figsbee of Avon Products, Inc.; Marie Copleston of Tussy Cosmetiques and Amelia Bassin of Faberge, Inc.

Toni Buys New Chemical Plant Site in North Chicago

The Toni Co., division of the Gillette Co. has purchased a 62-acre site near North Chicago on which it will build a chemical process development laboratory.

Hair Sprays Offered in Assorted Aerosol Sizes

Charles Antell Inc. has launched a full assortment of aerosol containers in 2½, 5, 7 and 14½ oz. sizes, for its lanolized hair spray.

Two New Types of Lanolin Derivatives Now Available

The commercial production of two distinctly new types of lanolin derivatives has been announced by American Cholesterol Products Inc., Edison, N. J. These are the Solulans and Ricilans both of which are now offered to the cosmetic and pharmaceutical industries.

The Ricilans are hydrophobic viscous liquid waxes composed of polymeric hydroxyesters by synthesis from the natural substances, lanolin and castor oil. They are reported to be 100% active emollients, penetrants and spreading agents which are said to offer unusual benefits when applied to the skin and hair. Although possessing a high degree of unsaturation they are said to be exceedingly stable. They are recommended for use in lipsticks, aerosols, hair products, emulsions, silicone formulations and many other preparations.

The solulans are stated to be new, decidedly different polyoxyethylene derivatives of lanolin, 100% active, nongreasy, clear liquid products with complete solubility in water, alcohol, many oils and solvents. The unique solubility and substantive properties are obtained by balancing hydrophilic polyoxyethylene and hydrophobic acetyl groups. Full information about both products may be had by writing to the company.

Rhodia Adds New Line of Imitation Fruit Flavors

A variety of imitation fruit flavors has been added to the line of Rhodia, Inc. flavors under the name of Rhodiaroma. The flavors were developed specifically for the candy, confectionery and baking industries. In addition to the imitation fruit flavors Rhodia recently launched two chocolate and coffee enhancers.

Robinson-Wagner Co. To Have New Offices

The Robinson-Wagner Co., Inc., has awarded contracts for the construction of air-conditioned general and executive offices at Mamoroneck, N. Y. The new offices are expected to be ready for occupancy during the early part of April at which time the company will move to its new headquarters at Mamaroneck.

THE MAGIC BUTTON

In this scene from the new aerosol television movie, "The Magic Button," Officer Reagan's tired, hot feet are given a cooling and refreshing spray while amused neighbors watch. Foot spray lotion, here being applied by the film's young star, is but one of a variety of aerosol packaged products contained in the young boy's bag of magic button tricks. "The Magic Button," produced for national television distribution by the Aerosol Division, Chemical Specialties Manufacturers Assn., is a part of its consumer promotion program.

Congressional Hearings on Additives Postponed

Open door hearings on food additives have been postponed indefinitely Rep. John B. Williams, head of the committee on additive legislation reports. A workable proposal for a bill for consideration of Congress must first be evolved from the divergent views of numerous bills on the subject which have been introduced in the House.

N. V. Chemische Fabriek Naarden Subsidiary Name Changed

The name of the working subsidiary in federal Germany of Chemische Fabriek Naarden Holland Ltd. has been changed to Deutsche Naarden G. m. b. H.

Colgate Earnings Show Sharp Rise

Following a meeting of the Board of Directors recently, E. H. Little, Chairman, announced that consolidated earnings of Colgate-Palmolive Co. for the year 1957 amounted to $19,930,000 or $7.81 per share of common stock. This compares with consolidated earnings of $15,477,000 or $6.04 per share in 1956.

Wm. T. Hand Equipment Co. Formed

Wm. T. Hand, previously vice president of Consolidated Products Co., Inc., for 30 years has reentered the same field and formed the Wm. T. Hand Equipment Co., located in Manhasset, N. Y. The company deals in used machinery for the chemical, processing and related industries.

World Trade Answers Available in Data Yearbook

The answers to many everyday foreign trade problems are contained in the newly revised World Trade Data Yearbook available from Exporters' Digest and International Trade Review, 253 Broadway, New York 7, N. Y. Included in the Yearbook is the 8th Annual Study of Credit Terms being granted by U. S. exporters to their customers abroad. Some 3,000 exporters were questionnaired, replies pinpointed payment terms by commodities in over 70 world markets.

Salesmen's Assn. Announces Golf Outings

Dates and locations of the five golf outings of the Salesmen's Assn. of the American Chemical Industry are: May 20, Spring Brook Country Club, Morristown, N. J.; June 26, Beefsteak Dinner and golf, Dellwood Country Club, New City, N. Y.; July 22, Bonnie Briar Country Club, Larchmont, N. Y.; August 19, Golf and Clambake, Tamarack Country Club, Greenwich, Conn.; September 16, Hackensack Country Club, Oradell, N. J.

New Shulton Beauty Ice Combines Moisturizer with Astringent

Beauty giving moisturizing ingredients linked with astringents in the new skin treatment product, Beauty Ice to be launched April 1 by the Shulton Co. enable it to give the benefits of both in a single product the company states. It is to retail for $1.50.

Houston Proclaims Lady-in-Waiting Day

By order of the Honorable Lewis W. Cutrer, Mayor of Houston, Texas, February 18th was officially proclaimed Lady-in-Waiting Day, in honor of Houston's thousands of expectant mothers.

The Houston Lady-inWaiting "Salute" was the 11th in a series of national events co-sponsored by Mennen Baby Products and a leading department store.

Shulton Announces Changes In Fine Chemicals Division

Shulton, Inc. has assigned Kenneth Hanover and George Foy to new posts in their Fine Chemicals Division. Kenneth Hanover, named manager of Process Engineering, will be responsible for the Chemical Laboratory, the Pilot Laboratory and development engineering for all processes. George Foy, named manager, Commercial Development, will be responsible for advertising, sales promotion, market research and the preparation of new markets for development by the sales department.

Flavoring Extract Manufacturers to Meet in Chicago May 18-21

The 49th annual convention of the Flavoring Extract Manufacturers Assn. will be held in the Edgewater Beach Hotel, Chicago, May 18-21.

OBITUARY

RENE HONNORAT

Rene Honnorat, director of Benard & Honnorat successors of Mero & Boyveau, Grasse, France, died in Grasse February 16 at the age of 72 years. Mr. Honnorat had been associated with the perfumery industry since 1913. He is survived by his widow. The business will be carried on by his associates.

MRS. KATHRYN BURGER

Mrs. Kathryn Burger, widow of the chairman of Lorr Laboratories, died recently at the age of 68 years. With the late Dr. Nicholas Marcotoon the Milkmaid line of toiletries which rose from nothing to sales of over two million dollars annually, was founded. It was later sold to the Nestle-LeMur Co. When John Burger, her husband, died in 1943 the management of the companies passed to Mrs. Burger.

ABRAHAM MOSCOWITZ

Abraham Moscowitz, chief chemist of the Belleville, N. J. plant of L. Sonneborn Sons Inc. died February 11 at the age of 62 years.

Little Lady Corner

The children's accessory department of the Jordan Marsh Co., Boston, Mass., displays the complete collection of Little Lady Toiletries at a special Little Lady counter. The child-appealing packaging design, plus the use of a special Little Lady gift cabinet, make a charming Little Lady corner to attract consumer traffic.

SPOTLIGHT News...

Business failures in 1957 totaled the largest number since pre-war 1939 with liabilities of $615,000,000 for a new high mark according to Dun & Bradstreet.

Bald headed men are wanted for research on growing hair by the Association for Consumer Research of Great Britain which is seeking to find out whether anything really will grow hair.

A new aerosol TV movie is now available for industry use. It is the first one produced under the sponsorship of the Aerosol Division of the Chemical Specialties Manufacturers Assn. to promote new and established pressure-packed aerosol products. It will be shown over 75 TV stations across the country.

Gleem toothpaste in an aerosol container is being test marketed in Easton, Pa. and Philipsburg, N.J. by the Procter & Gamble Co. Colgate-Palmolive Co. and Carter Products Inc. launched toothpastes in aerosol containers late in 1957.

A phonograph record on conducting effective round table sales conferences has been produced by Porter Henry & Co. Inc., New York, specialists in sales development and training. The 30 minute record gives tips on how to get a discussion started and how to keep it moving.

Sales of the Lambert-Warner Pharmaceutical Co. have increased 350% in the last seven years. Sales in 1957 were $175,000,000 or 3½ times the sales in 1951.

Dear to Me perfume produced by Cecile Gagnon Co., White Plains, N.Y., was featured by the department store of Lord & Taylor, New York for valentine's day. There was a window display and the fragrance was blown on Fifth avenue for a week.

Cosmetic legislation as well as food and drug legislation in countries in the western hemisphere is to be studied by a new Food, Drug and Cosmetic Law section which has been established by the Inter-American Bar Assn. The creation of such a section was recommended at the association's annual conference last year by Charles Wesley Dunn, chairman of the American Bar Assn. division on food, drug and cosmetic law.

The U. S. Economy was the theme of an interesting address by Franz Pick at the February 13 meeting of the Cosmetic Industry Buyers and Suppliers Assn.

A new line of cosmetics to be sold door-to-door has been launched by Dr. Joseph Schultz former president of Lanolin Plus Inc. The new company is located in Chicago and is called Imperial Research Co. Distribution of the cosmetics is to be made through Salespower, Inc., a national sales distribution company.

An income of $1,494,862 from royalties on patents for ammoniated tooth paste owned by the University of Illinois Foundation has been reported. Of that amount $753,000 was paid to the Foundation by the Block Drug Co. following a suit claiming that Block's Amm-I-Dent toothpaste infringed the patent. Ammoniated tooth paste is made by 15 companies under licenses from the University of Illinois.

New research techniques were considered at the March 5 symposium of the Assn. of Consulting Chemists & Chemical Engineers. Prof. Seymour Lewin of New York University was the guest speaker and Dr. Everett G. McDonough was moderator.

Trig, the new men's deodorant of Bristol-Myers Co. which was tested in four markets is now being nationally distributed. A heavy national advertising campaign got under way this month.

The Fragrance Foundation has named an outside public relations counsel for the first time in its history. The Group Attitudes Corp., a subsidiary of Hill & Knowlton Inc. will represent the Foundation in its future public relations activities. David Penn of that concern will supervise the work.

New teeth in the Robinson-Patman act are found in two bills HR 10304 and HR 10305 introduced in Congress. They make it compulsory on the part of manufacturers to grant functional discounts to wholesalers when they do not sell direct to retailers. The aim of the bills is to protect the small retailer who must buy from wholesalers and cannot deal directly with manufacturers as their large competitors are able to do. By requiring manufacturers to grant functional discounts to wholesalers presumably the small merchant will benefit by being able to purchase at a reduced price from his wholesaler and thus be on a competitive level with the large retailer.

National Beauty and Barber Manufacturers Assn. directors will hold a breakfast meeting in the Hotel Statler, New York, March 19.

The Western Packaging and Materials Handling Exposition is to be held in San Francisco, August 11-13, in the San Francisco Civic Auditorium.

tion of dandruff scales or flakes), provided the labels, leaflets or other advertising relating thereto are so limited as to exclude any reference to the use of the preparations or products for toilet purposes (such as to improve one's personal appearance). Scalp lotions and scalp ointments, however, which are used or intended for use as a treatment for dry, oily or falling hair are taxable.

Dentifrices.

Deodorants (for use only for spraying rooms, bedding, or inside of automobiles).

Electric shaving preparations which serve the same functional purposes as lather or brushless shaving creams, provided they are not recommended for use after shaving or for other toilet purposes.

Emery boards.

Eye drops, eye lotions and eye washes (if not recommended for beautification of the eyes).

Eyelash brushes.

Eyelash combs.

Eyelash curlers.

Facial tissues.

Foot creams, balms, lotions, and powders for use in the treatment of tired, aching, burning or itching feet, or of skin irritations such as "athlete's foot," provided no claims or recommendations are made in advertising matter for use as deodorants, anti-perspirants, or for other toilet purposes.

Glycerine (if not recommended for toilet purposes).

Lip ices and salves (uncolored and unperfumed and recommended for use only after exposure).

Manicuring instruments.

Medicated preparations (if recommended only for relief of skin irritations and not for prevention of sunburn, chafing, etc.).

Mosquito repellents (unless advertised as sunburn preventatives).

Mouth washes (if not recommended for after shaving use or to sweeten the breath or other toilet purposes).

Permanent waving curlers, caps, tissues.

Peroxide (if recommended only for use as an antiseptic or for medicinal purposes).

Powder puffs.

Preparations compounded by druggists pursuant to bona fide prescriptions of physicians (except where the prescription, on its face, specifies that it is for toilet purposes).

Preparations when recommended exclusively for use by morticians in preparing bodies for burial.

Reducing salts (unless perfumed or recommended for toilet purposes).

Rose jars (if intended for use solely in scenting or perfuming the air of a room or home).

Rubbing alcohol (if not scented or recommended for toilet purposes).

Shampoos (containing more than 5% of saponaceous matter and which are recommended only for cleansing purposes).

Shampoos and other preparations recommended for use only on dogs, cats, and other pets.

Shaving creams (whether brushless or lather), soaps, powders, or other preparations recommended solely for use in softening the beard preparatory to shaving. (Also see "Electric shaving preparations").

Smelling salts.

Soaps, in cake, powder or liquid form.

Sponges.

Styptics (in pencil, cream, powder or liquid form recommended for use only to stop the flow of blood from cuts in the skin).

Theatrical makeup: Such items as grease paints, clown white, nose putty, black wax, black face for minstrel makeup, and spirit gum are not taxable provided they are not advertised or sold for toilet purposes. However, face creams, toilet powders, lipstick, rouges, eyebrow and eyelash mascara, eye shadow creams and other preparations which are commonly and commercialy known and sold in the trade for toilet purposes are taxable, even though sold for use as theatrical makeup.

Toothbrushes.

Toothpastes and toothpowders.

Tooth stain removers.

Toy makeup kits which contain only imitations of cosmetics or other toilet preparations.

Tweezers.

Zinc oxide (if not recommended for toilet purposes).

Zinc stearate powder (if not recommended for toilet purposes).

PERSONALITIES

Harold Lee has been appointed manager of aerosol product sales for Old Empire, Inc., Newark, N. J. Mr. Lee had been Eastern sales manager of Con-

Harold Lee

tinental Filling Corp. and prior to that was vice-president of G. Barr & Co. He began his career as purchasing agent for Revlon Products Corp.

Dr. J. H. Blumenthal has joined the Research Dept. of van Ameringen-Haebler, Inc., as a group leader. He will work on new aromatic chemical compounds and processes. Dr. Blumenthal for several years was in charge of Exploratory Research for the Air Reduction Co., Inc., after serving in various research capacities with Smith-New York Co., Inc., and the Cleveland Clinic Research Foundation.

Edgar S. Ormont has been appointed sales representative for Anatole Robbins, Inc., according to a recent announcement. He will cover the central part of the United States. Mr. Ormont has been engaged in a similar capacity for the last four years with Estee Lauder Cosmetics.

Irving P. MacPherson, Jr. has resigned as president of the Geo. W. Luft Co., manufacturers of Tangee Cosmetics, according to a recent announcement by Constance Luft Huhn, Chairman of the Board. Mrs. Huhn will assume the position of president.

Victor DiGiacomo, chairman of the program for the fourth annual symposium of the American Society of Perfumers is to lecture at the University of Chicago, March 31, on "Perfumes, Fragrances, Colognes and Toilet Waters."

William Jay has been appointed executive vice president of the Los Angeles Soap Co.

C. H. Judge, district manager in St. Louis, Mo. for the Colgate-Palmolive Co. has been advanced to field sales manager.

Vincent P. Brunelli has been elected president of the Lady Esther division of the Chemway Corp. The sales department is being transferred from Chicago to Wayne, N. J.

Frank Pull who has been associated with the finished goods and raw materials industry as a perfumer for many years has joined the organization of DeLaire, Inc., New York, N. Y.

Jean R. L. Martin of Martin-Valer consultants and his wife Dr. Yolanda Valer Martin will leave for Europe on a business and pleasure trip April 22. While abroad Mr. Martin will give a lecture before the British Society of Cosmetic Chemists April 25. Mr. and Mrs. Martin will then visit England, France, Belgium, Switzerland, Germany and Italy and expect to return by the end of June.

Miss Dorothy Morrison has been appointed publicity director of Shulton, Inc.

Charles Rustin has been made sales vice president of Revlon Inc.

Edouard Baumann of Albert Verley & Co., Linden, N. J., is spending about two months in Paris on one of his regular visits there. Mr. Baumann is sales manager of Albert Verley & Co.'s subsidiary in Paris, Aromescence, Inc. Aromescence, Inc. has just been relocated in larger quarters at 10 Rue Pergolese. The company is managed by Pierre Parchois, a well known perfumer in the United States and France who was born and raised in Grasse.

Waldo F. Reis, vice president of van Ameringen-Haebler, Inc., has returned from a trip to Europe, where he inspected the company's operations, including the production facilities of its subsidiary, van Ameringen-Haebler, S.A.R.L., in Paris. van Ameringen-Haebler, Inc. has been expanding its world-wide operations to facilitate distribution to the overseas manufacturing units of domestic customers producing cosmetic, soap and fragrance products.

John N. Carroll, previously with Prince Matchabelli, has been appointed sales manager of the Geo. W. Luft Co., manufacturers of Tangee cosmetics, according to a recent announcement by Constance Luft Huhn, president.

Dr. Jerome G. Kaufman has joined the technical staff of Fleuroma Inc. as head of its expanding chemical research

Dr. Jerome G. Kaufman

and development division. Dr. Kaufman is a veteran of over 20 years in the organic chemical industry.

Fred W. Kalker has been appointed representative for Bourjois Inc. in the southern California territory.

James P. Selvage, chairman of the board of Lanolin Plus, Inc. has announced the elevation of four of the company's district managers to the newly created positions of regional assistant vice presidents. They are: Albert Harris, Eastern division; Paul Kerr, Western division; Joseph Malone, North Central division; and Lester Ramsdale, Southern division. Under sales manager Leslie Sauers sales of both Lanolin Plus and its subsidiary State Pharmacal Co. will be more closely coordinated.

K. M. Freedman has been appointed sales manager of the Lady Esther division of the Chemway Corp.

Wilbur Walling who covered the Texas territory for Bourjois Inc. is now covering the northern New England and New York state area.

Robert Middendorf, vice president of Bonne Bell, Cleveland, Ohio, was the first salesman engaged by the company to call on retail drug stores. Over the years he did so well that he was made sales manager.

Omar Adams has been appointed assistant to P. B. Russell, executive vice president of Jean d'Albret to assist in sales work.

Roy H. Hoonhout, formerly with Mack Molding Co., has been appointed vice president of Monroe-Danford &

Roy H. Hoonhout

Co., 50-48th St., Weehawken, N.J. Monroe-Danford & Co. represent several manufacturers supplying packaging items, brass closures, aerosol components, lipstick cases, custom molded plastic items, perfume and cosmetic containers as well as providing a number of services for the cosmetic and allied trades.

Edward J. Breck, president of John H. Breck Inc., was recently appointed a Director of the Valley Bank and Trust Co. of Springfield, Mass. In addition, Mr. Breck was elected to the bank's eight man Executive Board.

Stanley Crouch, manager of Fritzsche Brothers, Inc. Los Angeles office, celebrated his 25th anniversary recently at a private dinner party.

Benson Storfer, president of Parfums Corday, Inc., has been reappointed co-chairman of the Cosmetics Division of the New York City Cancer Committee's 1958 April Cancer Crusade.

James J. Mahoney joined Yardley of London, Inc., recently in the newly created position of director of merchandising, according to an announcement by Philip C. Smith, president.

Robert T. Walsh has been appointed executive vice president of the New York Board of Trade, Inc., according to a recent announcement by the board of directors.

William B. Philipbar, Jr. has been appointed product sales manager of the Stearates Division of Nuodex Products, a division of Heydon Newport Chemical Corp.

Diane Adrian has been appointed to the sales staff of Charles of the Ritz International Co., Inc. She will leave for South America at the end of March to take up her duties as traveling representative for the firm where she will train sales personnel and set up special store promotions.

Mrs. S. Irene Isacoff, wife of Harry Isacoff the popular chairman of the New York Chapter of the Society of Cosmetic

S. Irene Isacoff

Chemists was graduated from Hunter College, February 20 with the degree of B. S. in Home Economics, Cum Laude.

Stephen L. Mayham, executive vice president of the Toilet Goods Assn. has been appointed cosmetic law editor of the Food, Drug & Cosmetic Law Journal.

Robert P. Neuffer has joined Chesebrough-Ponds Inc. as field sales manager.

Robert C. Fuller, vice president of manufacturing and a director of Chesebrough-Ponds Inc. resigned March 1.

MARKET REPORT

Summer Potential Swells Sales

Widely diversified uses as well as a steady rise in new applications continue to be reflected in increased sales of essential oils, aromatics and specialty items. In addition to rapid strides in the aerosol field, preparations on the part of insecticide and the pesticide trade in making an extended line of complete formulations for spring and summer have tended to swell sales.

PRICE CHANGES

Advances	Current	Previous
Gum styrax		
Honduran	$1.65	$1.55
Asiatic	1.65	1.50
Oil orange, bitter, W.I.	3.60	3.25
Oil orange, Floridian	1.10	0.75
Oil grapefruit	1.95	1.75
Oil tangerine	2.75	2.45
Castoreum, nat	7.50	6.50
Oil rose, oz.		
Bulgarian	70.00	60.00
Turkish	55.00	48.00
Vanilla beans		
Bourbon	9.00	8.75
Mexican	9.50	9.00
Declines		
Oil clove leaf	$0.87	0.90
Petitgrain, terpeneless	3.75	3.80
Oil nutmeg, E.I.	13.00	14.00
Balsam, copaiba	0.50	0.55
Oil sage, Dalmation	3.75	3.95
Gum arabic, amber sorts	0.18½	0.19¼
Oil rosewood	2.15	2.40
Ethyl bromide	0.45	0.48
Balsam, Oregon, gal.	3.50	4.25

(Prices per pound unless otherwise specified.)

PERFUME ITEMS ADVANCE—

The trend in a number of materials that go into perfumes was upward. Castoreum, one of the fixatives used in compounds advanced to $1 per pound to the basis of $7.50, and a sharp advance took place in Bulgarian rose oil. Spot prices for Bulgarian rose moved up to $70 to $72 an ounce following a jump in shipping prices to over $2,000 per kilo. Turkish rose oil prices likewise moved higher to the basis of $55 to $58 an ounce.

RISE IN VANILLA BEAN DEMAND LOOMS—

While nearly half of the new crop of 400 tons of vanilla beans in Madagascar is currently afloat to the United States, most extract manufacturers have been buying close to immediate or nearby requirements. By April or May manufacturers will again find it necessary to appear in the market, it is believed. Prices are strong with basic conditions surrounding the market suggesting further advances in the event demands grow more pressing. Spot prices on Bourbon beans range from $9 to $10 per pound. Mexican whole and cut beans are higher at $9.50 to $10 and $9.25 to $9.75 per pound, respectively.

ASIATIC STYRAX SCARCE—

Prices for Asiatic styrax gum moved into new high ground advancing to $1.65 to $1.70 per pound. The persistent upward trend is attributed to a number of reasons including limited supplies and sudden spurts in demand. Honduran styrax, or liquid amber, has likewise been edging upward in price with the latest increase of 10¢ establishing spot prices at $1.65 to $1.70 a pound.

ORANGE OIL OUTLOOK STRONG—

Floridian orange advanced to $1.10 per pound with the outlook suggesting a further rise in prices. The advance was accompanied by upward adjustments in a number of orange concentrates. A series of freezing spells that hit the citrus belt in Florida had an immediate effect on prices for orange oil in view of an already strong situation that had existed in Californian orange. The expanded housing program in California has been responsible for trees being destroyed at a more rapid pace than new plantings.

GUM ARABIC EASES—

Spot prices for gum arabic turned easier at 18½¢ to 20¢ per pound due to more favorable shipping prices quoted from Port Sudan. Advices from the primary center stated that until European buyers again enter the market there is likely to be a greater amount of pressure on the part of exporters to reduce holdings. Gum karaya prices remained fairly steady. Number three grade of karaya was in a tight supply position with demands over the past few months having cut into the available supply.

OIL NUTMEG LOWER—

West Indian oil nutmeg was practically unavailable on spot, but the East Indian variety was lower. There was a good demand for both items. More favorable costs of the spice made it possible for dealers to reduce quotations on East Indian oil.

ETHYL BROMIDE SLASHED—

Prices were reduced 3¢ per pound on this ethylating agent in order to spur sales. The less carload price was slashed to 45¢ a pound, and the carlot price to 43¢.

HEAVY TONE IN GLYCERIN—

Unless there is a more definite upturn in glycerin sales, a general price reduction is likely to be noted on the basis of the overall statistical position. More synthetic material is scheduled to come on the market this month if an additional unit in accordance with earlier plans, comes on stream. Stocks have been steadily increasing. In December they reached a high level of nearly 76 million pounds. A reduction of 2½¢ a pound in pentaerythritol which actively competes with glycerin in some major consumer lines served to have a softening influence on the market.

TARTRATES FIRM—

Demand for tartrates has been running somewhat below the level of a year ago, especially tartartic acid. Underlying conditions have continued quite firm over the first two months of the year. The firmness in the general tone can be traced to continued high costs of the basic material from which they are made, namely argols, obtained from major wine producing countries abroad.

LINALOOL UNSETTLED—

The situation in linalool is highly unsettled. Continued weakness in oil rosewood threatens to have a further softening influence on linalool prices. Demand for linalool was only moderate at best. Most buyers were inclined to be extremely cautious in their operations.

CLASSIFIED ADVERTISEMENTS

Rates per line, per insertion: Situations Wanted and Help Wanted, 50c. All other classifications, $1.00. Please send check with copy.

FOR SALE

FOR SALE: One year's supply of latest information on market prices, new formulations, sales promotion techniques. Delivered to you on regular monthly schedule. Total investment for 12 months: $5.00. Potential return: Unlimited. Address: Circulation Dept., American Perfumer & Aromatics, 48 W. 38th St., New York 18, N. Y.

HELP WANTED

WANTED: TWO COSMETIC CHEMISTS

West Coast Manufacturer has opening for two experienced chemists to work in cosmetic research laboratories. Please send full information to: BOX 3168, AMERICAN PERFUMER & AROMATICS
48 W. 38th St. • New York 18, N.Y.

•

PROFESSIONAL SERVICE

•

•

•

•

•

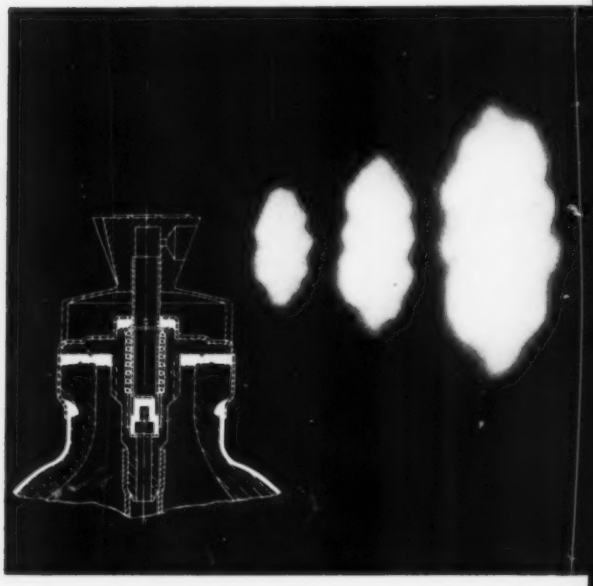
Index OF ADVERTISERS


ready
for any
eventuality!
in her delightfully
fragrant Sun Screen–
Insect Repellent
The lady's feeling safe—and beautiful. Neither the burning rays of the sun, nor hordes of insect pests can trouble her day at the shore... and she loves the aroma that clings to her body. For the sunscreen lotion she is wearing has two important added ingredients...an insect repellent and an appealing fragrance. Many of today's most popular suntan products have been combined with a material such as Diethyl Toluamide and given the two-fold task of protecting from burn and bite! Such a combination requires special perfuming attention, and the D&O Labs have developed a group of fragrances specifically for this purpose. They have been thoroughly tested in aerosol formulations, both spray and foam type, as well as in conventional lotion formulas. Make your sunscreen-insect repellent a triple threat at the beach... give it an individually tailored, D&O fragrance! Samples on request.
"Essentially for you"
D&O
OUR 159TH YEAR OF SERVICE
DODGE & OLCOTT, INC.
180 VARICK STREET • NEW YORK 14, N. Y.
SALES OFFICES IN PRINCIPAL CITIES

Creating New Horizons
In Cosmetic And
Pharmaceutical Packaging

RISDON METERED SPRAY AEROSOL VALVES

For Coated Glass Containers



For Metal Containers

Creative research has made the Risdon metering valve another facet of Risdon's leadership in aerosol product dispensing.

You will find it in use on exquisite containers dispensing measured amounts of many of the best known perfumes. And in the pharmaceutical field, its ability to deliver the various pre-measured dosages desired, through special applicator-actuators, is opening new aerosol product possibilities.

It is available with either standard or patented Risdon "Micro-Mist" actuators, permitting unprecedented formulation latitude.

To serve your aerosol dispensing requirements Risdon offers technical advice and assistance plus extensive research, testing and quality control facilities and a fund of successful experience in the production of valves for a wide range of products.

For further information on Risdon metered-spray or conventional spray valves for glass, metal or plastic containers, contact Risdon today.

RISDON

THE RISDON MANUFACTURING CO.

Valve Division, Naugatuck, Conn.

For Combination Glass & Metal Containers

Available with Special Applicator-Actuators For Pharmaceutical Products

R1-96